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ADDRESS.

STRENGTH OF THE DIFFERENT MYDRIATICS AND MYOTICS.

CHAIRMAN'S ADDRESS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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It will naturally occur to you that the development of our own Section work, the increase in the number of papers presented here which raise points for our discussion, and the increase in the number of members who can from their own observations add to the value of our discussions, together with the multiplication of ophthalmic journals, has rendered obsolete the Address which the By-laws of the AMERICAN MEDICAL ASSOCIATION say the Chairman shall prepare "on the recent advancements in the branches belonging to his Section." My predecessors for some years seem to have felt this and have chiefly confined their remarks to the other topic allotted them, viz., "suggestions in regard to improvements in methods of work."

Such suggestions as I would make regarding the conduct of our Section have been embodied in the arrangement of our program, or will appear in the course of our proceedings. The most important of them is in the attempt to enforce brevity in the communications that are to be read before us. In this effort I ask your assistance—that as readers of papers or speakers in discussion you will not ask for extension of time—and that as members of the Section you will bear in mind the rights of those who have not yet obtained the floor, as against the natural desire of a speaker to communicate more than a fair share of his ideas.

For a gathering such as this, the elementary principles, the complete and rounded treatise, the historical review, the miscellaneous details of cases, even the professional experiences of the speaker, except as they bear directly on the point under discussion, are all out of place. The office of the written paper here is to awaken and shape the discussion. If you have new facts, even of the highest importance, that will awaken no criticism from our experience, suggest no questions that we want to put to you, do not bring them here. You can communicate them more cheaply and more perfectly through the printed page. The medical society should not be a contrivance for stuffing unwilling victims with even the most valuable information. If we have tried to use it for that purpose, let us stop doing so.

It may often happen that with the papers that are to be printed, as well as read here, we may desire that as they appear in the JOURNAL, or our volume of Transactions, they should contain matter not essential to the intelligent consideration of the points raised for discussion. Such matter may well be included in the paper, but omitted in the reading.

The absurdity of addressing you on current ophthalmic literature, with the chief additions to which you are already familiar, is too apparent to demand any apology for turning quite aside from such a course. I have chosen, therefore, to speak chiefly on a particular topic, important in itself, but I think especially appropriate, because complete knowledge of it will be best reached through collective investigation.

RELATIVE STRENGTH OF MYDRIATICS AND MYOTICS.

With the first medical use of any drug there arises the question of dosage, so that views, more or less positive, are current with reference to the absolute and relative strength of our various mydriatics and myotics. They are, however, little more than indefinite impressions, such as would not be tolerated among the accumulations of an exact science like chemistry or physics, and it is, I believe, quite within our power to replace them by definite knowledge. The mutual antagonism of these two classes of drugs, and the readiness and exactness with which we can measure the diameter of the pupil and the distance of the near point of accommodation, render this the field in which we can first gain exact quantitative knowledge of the physiologic action of drugs. In other investigations of the kind, we may know exactly the dose applied and the body weight of the animal to which it is applied; but have, commonly, no means of exactly measuring for comparison the result produced. In this matter of the dilatation or contraction of the pupil, the increased or diminished effort of the ciliary muscle, cause and effect, factors and product, can both be estimated with exactness.

The effect of a mydriatic on the eye can be most accurately observed subjectively, the subject of experiment making the observation, and one eye only should be subjected to the influence of the drug at one time, the other being kept normal for control of illumination and for comparison; the size of the pupil is to be measured by the distance apart of pinhole openings that give tangent circles of diffusion on the retina. I have employed a series of pin-holes punched in a piece of cardboard, the distance between them varying by $\frac{1}{4}$ millimeter intervals from 2 mm. to 9 mm. The effect on accommodation is tested by placing a lens before the eye subjected to the drug, convex for a mydriatic, concave for a myotic, and covering first one eye, then the other, while they are both made to focus fine print at the near point of distinct vision, and changing the lens used until that strength is found which most accurately neutralizes the influence of the drug on the ciliary muscles. Complete absence of accommodative power or pupil-

lary reaction is ascertained by the ordinary methods.

In the experiments now referred to, I have used the various drugs dissolved in distilled water, in proportions varying from 1 to 10 (homatropin) to 1 to 2000000 (hyoscyamin, etc.) and have applied them by dropping on the cornea with a pipette, giving 180 drops of water to a drachm.

As the measure of the strength of a mydriatic we may take the amount required to produce either of several definite physiologic effects. Thus we may take the strength of the solution when carefully applied that will constantly produce the least effect that can be certainly recognized. This I have found to be for pilocarpin (hydrochlorate), 1:2000, or 1-6000 gr.; homatropin (hydrochlorate), 1:10000, or 1-30000 gr.; eserin (sulphate), 1:50000, or 1-150000 gr.; atropin (sulphate), 1:500000, or 1-15000000 gr.; hyoscyamin (hydrochlorate), 1:1000000, or 1-3000000 of a grain.

What will be said of the strength of hyoscyamin applies equally to duboisin and scopolamin, and probably to daturin. In the Transactions of the Medical Society of the State of Pennsylvania for 1882, p. 157, I published a study of the subject, and the conclusion reached through it that, "Daturia, duboisia, and hyoscyamia are physiologically identical." Recently I have carefully compared the actions of duboisin and hyoscyamin with that of the newly introduced scopolamin, and have not been able to discover any difference between them.

This relation of the sizes of the minimum dose is a simple one, easily ascertained, and one that each of you may verify or correct without causing yourselves any personal inconvenience. It is to be hoped many will test it, as its general study would almost certainly reveal important facts as to susceptibility and idiosyncrasy.

But in practice we use these drugs in doses enormously greater, and when so used the ratios of their strengths differ markedly from those above indicated. In general it appears that those drugs whose action is more evanescent, require to be used in relatively larger dose to produce the minimum effect; that is, in practical doses they prove relatively stronger. This will appear on comparison of the foregoing with the data to be given presently.

A more practical measure of strength is to be found in the amount of the drug required to produce full dilatation of the pupil or complete paralysis of the accommodation. For purposes of comparison, however, a method which eliminates errors from imperfect instillation and absorption of the drug is to determine the strength of the different mydriatics by observing their power to neutralize a rather strong (1 to 1000, nearly .5 grain to the fluid ounce) solution of eserin sulphate.

The trial has been made by using a single solution containing both the drugs in the desired proportions. When this is resorted to, the myotic effect is first manifest, and as it declines the mydriatic becomes predominant. This is the case to a slight extent even with homatropin, and is much more marked with the slower mydriatics, especially atropin. Still, even with atropin, there is a time at the beginning of its maximum effect when the influence of the eserin has scarcely begun to decline, when they can be made to closely neutralize each other.

Taking this period of most complete neutralization, which is about one and one-half hours after instillation for homatropin, two and one-half hours for hyoscyamin, and three and one-half hours for atropin, I find that to neutralize the influence of the mydriatics requires for 1 part homatropin, 1-6 part eserin; 1 part atropin, 5 parts of eserin; 1 part hyoscyamin, 12½ parts eserin; 1 part homatropin, 4 parts pilocarpin.

Taking homatropin as the unit, the relative strength of the mydriatics and myotics then appears to be: pilocarpin (hydrochlorate), ¼; homatropin (hydrochlorate), 1; eserin (sulphate), 6; atropin (sulphate), 30; hyoscyamin (hydrochlorate), 75.

These proportions hold pretty nearly for either the effects on the pupil or on the accommodation, although in my own eyes (the only ones in which I have been able to note very accurately the changes in the accommodation), the mydriatics have all shown a relatively greater effect on accommodation. That is, in the transition from myosis to mydriasis, there has in each instance been a time when the pupil still remained contracted, although the accommodation had descended below the normal.

The strengths of the mydriatics and myotics that I have thus indicated has been ascertained by experiments first on my own eyes. Nearly all have been confirmed by experiments on the eyes of other persons; but not any large proportion of them on the eyes of any one person. In many respects these observations agree with the recorded observations of others; as with Risley, in his conclusion published in his first account of duboisin, that its influence on the accommodation was more than twice as great as that of atropin, and the chief results obtained by Donders and von Graefe and their students experimenting on atropin and extract of calabar bean.

But in some respects the published conclusions of earlier observers have not been confirmed. This has been especially the case in regard to minimum doses. Thus Loring, for atropin, found the minimum strength that would produce a notable effect on the pupil to be 1:150000, and Jaarsma (quoted by Landolt) concluded that a drop of either of the following solutions was the minimum dose that would affect the pupil: pilocarpin, 1:400; eserin, 1:12800; atropin, 1:80000; daturin, 1:160000; duboisin, 1:1200000. He thought that it required a strength of 1:800 of eserin to affect the accommodation. Graefe speaks of the dilatation produced by a solution of 1:120000 of atropin "long kept in contact" with the eye of a dog. The weakest solution of atropin referred to by Donders in his work was 1:14400, of which he says: "On the following day no trace of mydriasis is perceptible." ("Accommodation and Refraction of the Eye," p. 588.) I have, after the instillation of one-third of a minim of a 1:500000 solution of atropin containing 1-1500000 of a grain of the drug, found a mydriasis amounting to .25 of a mm., greater diameter of the pupil, after twenty-four hours. Subsequently, however, Donders became better acquainted with the mydriatic power of atropin, as is shown by the following letter published in the "Life and Letters of Charles Darwin," vol. II, p. 498:

DOWN, July 7, 1874.

My dear Professor Donders:—My son George writes to me that he has seen you and that you have been very kind to him, for which I return to you my cordial thanks. He tells me, on your authority, of a fact that interests me in the highest degree, and which I much wish to be allowed to quote. It relates to the action of 1-1000000 of a grain of atropin on the eye. Now, will you be so kind, whenever you can find a little leisure, as to tell me whether you yourself

have observed this fact, or believe it on good authority? I also wish to know what proportion, by weight, the atropin bore to the water solution, and how much of the solution was applied to the eye? The reason why I am so anxious on this head is, that it gives some support to certain facts repeatedly observed by me, with respect to the action of phosphate of ammonia on Drosera. The 1-4000000 of a grain absorbed by a gland clearly makes the tentacle which bears this gland become inflected; and I am firmly convinced that the 1-20000000 of a grain of crystallized salt (*i.e.*, containing about one-third of its weight of water of crystallization) does the same. Now I am quite unhappy at the thought of having to publish such a statement. It will be of great value to me to be able to give any analogous facts in support. The case of Drosera is all the more interesting as the absorption of the salt or any other stimulant applied to the gland causes it to transmit a motor influence to the base of the tentacle which bears the gland.

Pray forgive me for troubling you, and do not trouble yourself to answer this until your health is fully reëstablished. Pray believe me, yours very sincerely,

CHARLES DARWIN.

The fact here asked for is used in Darwin's "Insectivorous Plants," chap. VII. It is the dilatation of the pupil of the dog by 1-1000000 grain of atropin applied directly to the iris. But I have read this letter, not merely because it supports my observation as to the mydriatic power of atropin, but because in it lies revealed a general fact most worthy of our consideration. Does it appear to any of you that here are two great men in their dotage, pleased with mere trifles? You have then but poorly traced the course of scientific progress. This letter indicates the importance attached by two of the greatest scientists of our century to exactness and definiteness of observation; and all the history of scientific progress testifies that they were right in their estimate.

The observation of the Greek philosopher in his bath-tub, of the loss of weight by displacement of water, with a few similar observations furnished a foundation on which physics grew up, centuries before her sister sciences were imagined. For a thousand years the alchemists distilled and compounded and theorized, until in the eighteenth century, Black took to carefully weighing the products of his experiments. Priestley and Cavendish, Scheele and Lavoisier followed him, and in a single generation the crude theories of alchemy dissipated as mists before the morning sun, revealing the great vistas of modern chemistry. Within the year we have witnessed the proclaiming of a new element in our atmosphere, revealed simply by the minute difference between the weight of supposed nitrogen procured from the air, and nitrogen procured from other sources.

We all look forward to a day when we can speak with more truth of a science of medicine. Let us remember that it will come, and only come, as we bring the balance and the rule, and all other means of minute exactness into our methods of clinical investigation.

ORIGINAL ARTICLES.

THE KRÄG-JORGENSEN RIFLE.

A REPORT OF ITS EFFECTS ON THE SKULL OF THE LIVING, SHOWING THE FALLACY OF THE "HUMANE" THEORY ON GUNSHOT WOUNDS FROM THE MODERN RIFLE.

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The shooting through the head of a military convict attempting to escape from a sentinel at this post, with the Krag-Jorgensen, the new rifle adopted for the United States Army—presenting the first instance in the country of its effects on the skull of the living subject, has led to various sensational accounts in the secular press. Based on these, I have received a number of letters of inquiry from physicians interested in the result of the change of caliber. In order to prevent erroneous deductions from newspaper reports, and to give the profession a true description of the injury produced, I have deemed proper to publish this account, with a sketch of the skull as it appeared after removal of the integument.

I saw the man a few minutes after he was shot. His breathing was stertorous; he was, unconscious, and death appeared to be only a question of minutes. A cursory examination revealed two bullet wounds. The entrance wound (he was running away when shot), was located in the upper occipital region of the skull, and that of exit in the forehead a little to the right of the center. (Distance between rifle and victim ninety feet.) After passing through the man's skull, the ball went through a tree eight inches in diameter and buried itself in the ground two feet. The man died in half anhour.

Post-mortem was made the same night. The wound of entrance into the skin presented a round opening, without the appearance of scorching or blackening. The wound of exit in front was larger and more ragged. The integument was carefully dissected off and the bone of the top of the skull found extensively fractured, the parts being connected here and there by fascia.

On the calvarium being removed, the surface of the dura mater presented a state of intense congestion. To the right of the longitudinal fissure it was torn through for a distance of about four inches, about one inch from and parallel to it.

On removal of the coverings, the convolutions of the brain were made prominent by the engorged network of superficial veins. A furrow, corresponding to the injury of the dura was ploughed through the right hemisphere, in the region of the superior frontal convolution, about half an inch deep. The right lateral sinus appeared filled with blood serum; the left was normal. On section, the vessels of the brain were found engorged, but no other macroscopic injury of a prominent nature was apparent.

After removal of the brain, the cribriform plate exhibited comminuted fracture; one or two slight fissures in the petrous and squamous portion of the temporal bone, otherwise the bone was intact.

The skull cap presented the following injuries, viz: at the site of the entrance of the bullet, one-half inch above and to the right of the junction of the occipital and right parietal bones, an oval perforation $1 \times \frac{1}{2}$ inch, the edges shelving inward. From this opening there radiated the following fractures, viz:

1. Downward into the left lambdoid suture, separating it, thence horizontally along the parietal and frontal bones to the left orbital cavity.

2. An oblique into the sagittal suture, opening it for two inches.

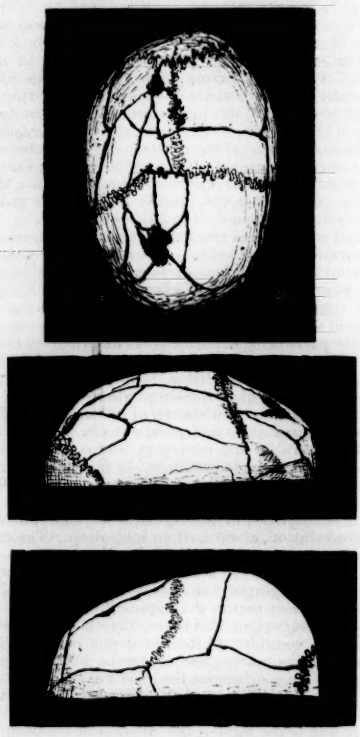
3. One parallel with the sagittal suture, bifurcating one inch from its origin into a wedge-shaped piece, which, again fractured, continued to the coronal suture separating it.

4. The left fracture communicated with the horizontal left fracture, described under 1, parallel to the coronal suture and one and a half inches to the rear.

5. A fracture at an acute angle from the former to

the right, communicating with the former, and with the lambdoid, two inches to the right of the superior angle of the occipital bone, and toward the front, extending into the coronal suture.

The wound of exit, two inches in front of the coronal suture and one inch to the right of the median line, was pyriform, one and a half inches long at its greatest diameter, three-eighths of an inch wide, the edges more ragged. It communicated with the coronal suture by three fractures, with the orbital ridge by two, and thence with the horizontal breaks.



A. C. Girard, del.

Death was evidently caused by concussion, as no vital parts of the brain were injured, and the hemorrhage was not considerable.

Now as to the effect of the bullet, the so-called humane result of this small caliber bullet, not much larger than a pencil, may be disposed of at once in the negative. The bullet was recovered and showed but a slight indentation,—the openings, considering the pulverization of bone in the immediate vicinity of the impact were small. We had clearly, what is called an explosive effect.

A few words of explanation on the *modus operandi* of such an injury are necessary to lead to a correct understanding. Theories, such as the effect of powder gases, heating of the bullet, have generally been abandoned. There was no deformation of the bullet or lateral impact, which might increase the striking surface.

I would exceed the limits, which have to be given to an article of this nature, if I attempted to give even in a condensed manner the experiments, which have led to the present views on this enormously destructive result accompanying an apparent slight bone defect. The conclusions arrived at have to be sufficient, and any one taking a special interest in the matter will find a complete history of the experiments in the *Bibliotheca Medica*, edited by Kocher, Konig and Mikulicz, names which guarantee the correctness and soundness of the accounts given (Part E, 2, 1895).

Modern projectiles act in a twofold manner: first in the line of the impact, and second, in a lateral direction. In both cases we observe beside the immediate effect, motion, which is communicated from the place of impact. If the result of impact leads to perforation, then the lateral effect is lessened in corresponding ratio. It depends on the cohesion of the molecules, on the diameter of the projectile, and on its velocity. In common terms it may be stated that the greater the cohesion, the more energy is wasted and the lesser the lateral effect—the greater the diameter, the more force is lost in the impact; but the greater the velocity, the more extended the lateral transmission of motion as the molecules have not the time to escape the lateral compression and communicate their motion until a place of minor resistance is reached, when disruption follows. This is the so-called explosive effect, which more properly should be called expansive. This is illustrated in our case by the penetration of a small bullet at a high velocity. The defect at the place of impact is small, but the lateral motion was such that the skull was raised from its base by the horizontal fractures and as this did apparently not suffice to limit the motion, the upper fragments were torn from their fascial connection.

In addition to this direct expansive effect on the bone of the skull, there is the hydrostatic result of rapid compression of the semi-fluid brain mass, confined in it. The molecules of liquids are readily displaced and a greater effect will be produced in them by a relatively smaller velocity, and with high velocity it is enormous.

It must be understood that the small caliber has not *introduced* the explosive effect, but owing to the higher velocity and consequently greater impact with a lesser diameter, it has *extended the zone* of explosive effect, always observed in large caliber projectiles, as long as they are moving under high velocity.

We may therefore give the following resumé of this case: a direct impact under the highest kind of velocity, without deformation of the bullet, small hole of entrance and exit of the bone, with extended stellate and circumferential fracture of the skull, partly due to direct impact, partly to lateral expansive motion, and partly to the hydrostatic effect of compression of the semi-fluid brain by the bullet, with displacement of the molecules in all directions, and disruption at the place of least resistance.

The base of the skull was not affected by the hydrostatic pressure because the dome was already weakened by the expansive effect of the direct impact, as shown by the longitudinal fractures and their branches.

Since completing the above, it has occurred to me that readers who are not familiar with the later experiments in gunshot injuries, might not readily understand what the "humane" theory is, and I therefore add a few words of explanation.

When the first experiments with the small caliber gun were made, it was found that occasionally the epiphysis of a bone showed an almost clean perforation and the rash conclusion was drawn that the new class of weapons, instead of shattering the bones and tearing the flesh, would make almost a punctured wound; therein they would be more humane.

The main fallacy in these experiments was that they were made on dry bones, in which the cancellated tissue of the epiphysis readily gave way to the lateral effect and thus the explosive result did not occur. In all experiments on fresh bones, and on bony cavities filled with a pulp resembling brain matter, the explosive action was manifest, as it has been found in the practical exhibit of the case under consideration.

INCIPIENT CATARACT.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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It is surprising how little real progress has been made in our knowledge of the etiology and pathology of cataract since the investigations of Marriotte,[1] Boerhaave[2] and Brisseau,[3] two hundred years ago.

In a paper read before this Section in 1892, I presented some thoughts on infantile cataract.[4] What I have to say to-day will apply more particularly to the so-called senile and other forms of cataract in adults.

In a large manufacturing city, like Cleveland, nearly one-half of the opacities of the lens coming under the observation of the ophthalmic surgeon are the result of traumatism, but as a discussion of injuries of the eye would require more than ten minutes, I pass to the consideration of other forms of cataract.

That there is a diabetic cataract is now generally recognized. That under dietetic and medicinal treatment the opacity of the lenses may disappear is not so generally conceded, although cases have been reported by Seegen,[5] Tannahill,[6] Nettleship[7] and others.

In a paper[8] read before the Ohio State Medical Society in 1889, I reported the case of Mrs. S., aged 43, first seen in April, 1884; cataract almost mature; could not count fingers with either eye. Urine contained large amount of sugar which almost entirely disappeared under dietetic and medicinal treatment. Vision rapidly improved to O.D, 20–70; O.S., 20–60. Continued to see very well with occasional fluctuations in vision according to amount of sugar in urine, until September, 1888, a period of four and one-half years, when after exposure she had suppression of urine and died suddenly in coma.

Since reporting the above case, Mr. M. came under my observation. Aged 56; having diabetic cataracts in both eyes. Left lens extracted in October, 1888. Shortly afterward he went abroad, lived much of the time at Carlsbad, drinking plenty of water and living on restricted diet. In February, 1894, he returned to this country improved in health and much to my surprise had discarded the cataract lenses and was using the unoperated eye with presbyopic lens.

Notwithstanding the general statement of recent writers to the contrary (Schmidt Rimpler)[9] I believe that further observation will show that there is a nephritic as well as a diabetic cataract. Eight out of thirty consecutive cases of cataract, in one hospital in my service, had albumin in the urine, although kidney disease was not suspected by the patients or family physicians. Deutschman[10] recognizes this not as a coincidence but says: "We must recognize a nephritic cataract just as we recognize a diabetic cataract, the cause in both cases being constitutional." Becker in the *Verhandl d Heidelb. Ophth. Vers.* 1884, denied Deutschman's statement that chronic nephritis leads to cataract.

The only case in which I have observed any marked improvement in vision in a nephritic cataract was that of Mr. O., aged 62, mature cataract of right eye; immature cataract of left; vision S. 20–200; operation of linear extraction performed on right eye in October, 1883; vision after operation 20–30. Urine contained a large amount of albumin and casts. There was a slight hypertrophy of the heart, but no valvular disease. Dietetic and medicinal treatment for the albuminuria was instituted with quite satisfactory results. At the end of a year found that his vision had improved to 20–50, S, in the unoperated eye; and that he had discarded the cataract spectacles and was using his old ones, with which he claimed to see better. He continued to use a pair of +2.50 D. lenses for five years, when his sight began to fail rapidly in left eye and he returned to the use of the cataract lenses. About the same time, there was a decided increase in the amount of albumin in the urine; the old gentleman after suffering from edema of the feet and legs and other serious results of kidney disease, died in 1891.

Numerous cases of cataract as the result of ergotism have been reported. Rickets is not infrequently said to be a cause of cataract as well as a certain form of skin disease. Glass blowers' cataract is recognized, and I have found cataract quite frequent among puddlers and other employes about iron mills who are exposed to intense heat.

Fraenkel,[11] of Lyons, "believes that cataracts are due to disorders of nutrition, *i.e.*, that they are due to auto-intoxication." Of thirty-four cases he reports, in thirty-three the urine contained less than the normal amount of toxic substances.

Collins[12] believes that the cataract process is not an exaggerated senile change but due to disturbed nutrition of another nature, in so far as chemic and morphologic changes are concerned.

Roosa[13] reports a case of cataract following a stroke of lightning which subsequently almost entirely disappeared.

Risley[14] says: "That while opacity of the lens is a disease of advanced life, it does not in all probability depend upon senile changes, but is originated in local pathologic states involving the nutrition of the eye itself." These local pathologic changes he believes to be in the choroid, and thinks the changes in the lens and vitreous in later life to be due to the same cause as the impaired nutrition of the sclera and the resulting posterior staphyloma and consequent myopia in children. He attributes the comparative freedom from cataract in early life to the yielding of the sclera, which prevents the lens from suffering from injurious disturbances of nutrition. In support of this theory of the cause of cataract Dr. Risley pre-

sents statistics of sixty cases taken consecutively from his case-book, in forty of which there was a choroiditis noted, and in many of the other twenty the opacity of the lens was so far advanced as to prevent a study of the fundus oculi.

I can recall five or six cases in which a preliminary iridectomy has been performed, and the patients have waited from one to fifteen years for the cataract to become ripe; at the present time they are no nearer maturity, and in two or three cases the lens is clearer than at the time of the iridectomy.

Thomas[15] and White[16] each report a case in which after triturating the lens to hasten maturity, the opacity disappeared entirely.

Witvalsky[18] has collected eighteen cases of spontaneous cure of senile cataract by absorption, reported within the past eight years, to which he adds two of his own and concludes that such cases are much more common than is generally supposed.

High degree of myopia has long been recognized as a predisposing cause of cataract—the same is true of glaucoma, the one can often be prevented by spectacles and the other cured by operation. While it is true that these are exceptional cases that we all recognize and act upon, is it not true that more of the cases of cataract if recognized earlier and studied carefully might be retarded or even cured? So many "cures" for cataract have been proposed by ignorant and unprincipled practitioners that any one proposing to treat incipient cataract is generally looked upon either as a fool or a knave. Consequently we have generally been contented to give the advice: "Wait until the cataract becomes ripe," and have not given these cases that honest study and close observation that we have many other diseases.

I do not believe that clinical observation will confirm Priestly Smith's[17] conclusions in all cases, "that senile cataract is entirely a local process and is not dependent on any disordered state of the general health."

In view of the preceding observations, may we not say that occasionally incipient cataracts under medical, hygienic, dietetic or local treatment do remain stationary or even entirely disappear and that the resources of our art looking toward this end have not been entirely exhausted?

In conclusion, I wish to suggest that in all cases of incipient cataract: 1, the urine should be examined chemically and microscopically; 2, the general health should be carefully interrogated; 3, all errors of refraction should be corrected; 4, a careful examination of the fundus oculi should be made; 5, that the patient receive such general and local treatment as may be suggested by the above inquiries; 6, that a few carefully reported histories of cases from incipiency to maturity would be of more value than statistics of hundreds of successful operations; 7, that if operative interference becomes necessary it should be instituted at the earliest possible moment before the general health becomes impaired, preferably by Knapp's[19] method of peripheral capsulotomy, with an iridectomy either at the time of the operation or some time previously.

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THE OPERATIVE TREATMENT OF IMMATURE AND SOME FORMS OF ZONULAR CATARACT.

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In the formation of ordinary senile cataract, the shrinkage of the nuclear portion of the lens, as has been pointed out by Becker, plays an important part. The shrinkage of the peripheral lamellæ does not progress as rapidly as those of the nuclear portion, and, as a result, a process of cleavage between peripheral and nuclear lamellæ is set up. The spaces thus formed are occupied by an emulsion known as the liquor Morgagni, which is composed of granular detritus, fat globules, myeline masses, and the intraocular fluids, and serves to produce the whitish opacities observed. The peripheral fibers themselves usually undergo degenerative changes—become filled with minute fat globules, break up into myeline masses and are sometimes entirely disintegrated. The liquor Morgagni forms between the capsule and the lens fibers, as well as between the lamellæ, serving to render the attachment between the two less intimate. At the earlier moment of this occurrence, the cataract is at the best stage for removal; however, this process is not gone through with in many cases of nuclear cataract.

In the rapidly developing cataract, particularly in relatively young individuals, the lens fibers become swollen by the imbibition of fluids and the granular degeneration of the fibers progresses very rapidly. The white soft cataract is the extreme example of this process. In these cases a stage of swelling is marked and the anterior chamber is rendered quite shallow. When the lens fibers are swollen, although they may be quite opaque, they are not readily detached from the capsule. The stage of shrinkage which follows, after it has proceeded sufficiently to permit of the presence of an anterior chamber of moderate depth, is more favorable for complete removal of the cortical portion, as some liquor Morgagni has been formed between capsule and lens. In many cases of cataract, where the process of cleavage plays a decided rôle, the stage of swelling does not develop. The nuclear lamellæ remain transparent, often are amber-hued, or show very little change, and the peripheral fibers degenerate very slowly. In still another form, occurring in older individuals, the opacity begins in the central portion of the lens, in the form of a diffuse haziness and advances slowly toward the periphery. In this form a stage of swelling seldom occurs, the lens being always smaller than the non-cataractous lens of the same age. In still another form the lens takes on a deep amber hue, all the fibers are hardened and condensed and there is

marked haziness of the nuclear portion. In the last class of cases no liquor Morgagni forms; however, the sclerosed lens is quite easily detachable from the capsule. In the forms of rapid development the vision is much reduced at an early stage. In some cases in which the cleavage affects the equatorial portion or the posterior cortex of the lens, vision becomes reduced, but often remains fairly good for a number of years. In many cases of nuclear opacification and in the typical sclerosed lens, the vision may become reduced to 20–100 or less and remain at that point for a long period of time. In the class of cases last mentioned, the patient reads with difficulty, if he reads at all, and the degree of vision is not sufficient to permit him to perform the ordinary duties of life.

There are also cases of lamellar cataract in which the opaque zone is large and dense; in some, calcareous deposits have taken place. In the process of the development of all forms of cataract there is a stage between the loss of useful vision and the formation of a condition which renders the detachment of the lens fibers from the capsule most easy, which may extend over a few months or a few years. This stage is most distressing to the individual and in not a few instances entails hardships on the patient or the patient's family.

During a long experience in the removal of the non-cataractous lens, at the dead-house, conducted for self-instruction, as well as for the instruction of students in the operative surgery of the eye, the writer has studied the behavior of the cortex of the transparent lens. It was observed that in the lenses that were twenty-five or thirty years old, the nuclear portion was fairly firm, about two-thirds of the mass of the lens coming away with the nucleus. It was further observed that much of the detached cortex could be made to follow the nuclear portion. The firm nuclear portion became larger as the age of the lens increased. On the strength of these observations, in spite of the dictum "hands off" in reference to operations on immature cataract, the writer began to remove the cataractous lens, soon after it had reached a degree of opaqueness sufficient to interfere with useful vision, whatever the form of the cataract might be. Before this plan was followed, the operation of ripening, advocated by Förster was tried in a number of cases, two of which are given in the following table. The lenses became rapidly opaque, but it was found that removal six weeks or two years later, was complicated by adhesion of cortical substance to the capsule, to probably the same extent as would have occurred had the extraction been performed at the time of the Förster operation. This experience was sufficient to cause the writer to abandon all ripening operations as not of sufficient value to compensate for the extra liability to accident and to inflammatory changes consequent on them. The writer now extracts at once when the opacity, whether posterior, cortical, nuclear, or peripheral or of any other form, interferes sufficiently with vision to render it of little value to the individual. If the lens is much swollen, the operation is postponed, and if the individual can wait until shrinkage occurs, without great sacrifice. If he can not, extraction is performed.

The form of operation attempted in all uncomplicated cases is—simple extraction, making the incision in the limbus and including about two-fifths of the circumference of the cornea, in individuals of 45 years or upward, and a little less in younger individuals. The incision is made large enough to permit of the easy extrusion of the firm nuclear portion of the lens. As much of the cortical substance as possible is removed by stroking upward over the cornea with spoon or lids, or by means of Critchet's or de Wecker's spoon passed into the anterior chamber. Lavage is seldom practiced. If, during the operation, any indication for the performance of iridectomy arises, iridectomy is performed. It has been found that in the large majority of the cases, iridectomy may be avoided.

Does the cortical substance that may remain in the eye after the extraction of immature cataract give rise to inflammatory trouble? The writer has never seen it. Substances capable of producing irritation, such as tabular crystals of cholesterin or minute deposits of lime, do not exist in the cortex of the immature cataractous lens, but do appear in greater or less quantities in the cortex of the hyper-mature cataract and their escape from the lens capsule is not infrequently accompanied or followed by irritation to the eye, of greater or less severity. The cortex of the immature cataract absorbs slowly if it lies in a capsule which has been opened near its periphery and in which the opening is small. If the capsule has been opened freely, which I endeavor to do, absorption of the cortical substance advances rapidly.

The accompanying table gives the results of operation in twenty-five cases in which an immature condition of the lens was present:

The twenty-five cases reported were divided as follows:

Immature soft cataract, three cases. Two occurred in the same individual and were due to extreme prostration from sea-sickness, during an ocean voyage. Förster's operation was performed before the extractions were attempted. At the time of the extractions, which followed three weeks after the Förster operation in one case and two years after in the second case, the cortical substance was still quite adherent to the capsule in both. Vision of 20–70 was eventually obtained in each eye. The third occurred after gummatous iritis, during the process of which a broad posterior synechia formed; only part of the lens was opaque. About one-half of the lens substance remained in the capsule. In three months the cortex was entirely absorbed and vision of 20–20 + was obtained.

Zonular cataract, five cases. The ages of the patients were, 19 years, two; 20 years, one; 49 years, two. In two of the cases the nucleus was dense. In two cases, chalky deposits were present in the opaque zone. Mild iritis developed in one of the latter cases. In all cases some cortical lens matter remained in the capsule after the first operation. The immediate vision was 20–40, two; 20–100, one; 18–100, one; 1–8, one. The ultimate vision was 20–20 +, two; 20–30, one; 20–40, one. All were simple extractions except one.

Immature complicated cataract, four cases. Two cases occurred as a result of heredito-specific keratoiritis and were of the diffuse variety; these were removed by the combined method (with iridectomy). The lenses which were mummified came away entire. Ultimate vision 20–70 in each eye. This could not be improved because of numerous macular opacities of the cornea. One case was complicated by adherent leucoma due to corneal ulcer, occurring in the lower third of the cornea. Iridectomy—vision of

No.	Sex.	Age.	Health.	Cataract.	Functional Ex.	Date.	Operation.	Recovery.	Time. Immediate.	Time. Secondary.	Secondary Operation.	Ultimate V.	Remarks.
1	F	35	Feeble.	Immature soft.	Good.	Sept. 28, '85.	Iridectomy; cocain; small incision; peripheral capsulotomy; some lens cortex left in capsule.	Uneventful.	12	20–100	Oct. 15, '85.	20–70	Förster's operation, August 3, 1885.
2	F	35	Feeble.	Immature soft.	Good.	Aug. 20, '87.	Iridectomy; some lens cortex left in capsule.	Uneventful.	14	. . .	Sept. 10, '87.	20–70	Förster's operation, July 20, 1887.
Z	o	n	ular.										
3	M	19	Good.	Zonular O. S.	Good.	June 15, '93.	Cocain 10 per cent. simple; some cortex remaining.	June 17; anterior chamber restored; uneventful.	14	20–40	July 25, '93, 6 days.	20–20+	Nucleus dense.
4	M	19	Good.	Zonular O. D.	Good.	June 22, '93.	Cocain 4 per cent. simple; some cortex remaining.	Uneventful.	16	20–40	July 25, '93; two needles were employed.	20–20+	Nucleus dense.
5	M	49	Good.	Zonular O. S.	Good.	July 28, '93.	Cocain 4 per cent. simple; some cortex remaining.	Uneventful.	12	20–100	Sept. '94; cortical absorbed.	20–30	Calcareous deposits in nucleus.
6	F	20	Good.	Zonular O. D.	Good.	June 19, '94.	Cocain 10 per cent. Iridectomy.	Uneventful; cortical occluded pupil.	13	1/8	July 17, '94.	20–40	. . . . .
7	M	49	Good.	Zonular O. D. Degenerated.	Good.	March 5, '95.	Cocain 4 per cent. simple; some lens cortex left.	Uneventful until the sixth day, when a low form of fritis occurred.	19	18–200	Aug. 7; cortex absorbed.	20–50	Calcareous deposits in nucleus. Their escape undoubtedly produced the iritis.
I	m	m	ature,	complicated.									
8	M	17	Good.	Diffuse O. S. after specific kerato iritis.	Good.	Oct. 22, '95.	Ether, large iridectomy, pupillary membrane removed with capsule forceps and excised; mummified lens removed entire; lost a few drops of vitreous.	Uneventful.	14	12–200	Nov. 26; sealed with cautery.	20–70	Cornea large with numerous macule.
9	M	17	Good.	Diffuse O. D. as in No. 8.	Good.	Jan. 7, '93.	Cocain 10 per cent.; large iridectomy; mummified lens removed entire; pupillary membrane removed.	Uneventful.	15	15–200	Feb. 11; wound sealed with cautery.	20–70	Dense pupillary membrane.
10	M	75	Good.	O. S. Immature V.=15-200.	Good.	March 29, '93.	Cocain 10 per cent. Iridectomy.	Uneventful.	12	20–70	. . . . .	20–70	Adherent leucoma in lower third of cornea after corneal ulcer.
11	M	38	Good.	Immature traumatic O.D.	Good.	June 5, '94.	Cocain 10 per cent. simple; some lens substance remained.	Uneventful; considerable soft lens matter in pupil.	11	1/8	Refused.	20–40	Lens cortex absorbed.
12	F	71	Good.	Post. cortical Cat. V.=20-200 O. S.	Good.	May 17, '93.	Simple, cocain 10 per cent.; a little cortex left in capsule.	Uneventful.	12	20–30	June 8; cortex had become absorbed.	20–20	. . . . .
13	M	54	Good.	Immature Senile, V.=20 100 O. D. Ant. cham. 2/3 normal.	Good.	March 13, '94.	Cocain 10 per cent. simple; very little capsule remaining.	Uneventful.	14	20–20	Apr. 23; cortex had become absorbed.	20–20+	Patient had been out of employment one year and was advised to wait another year because of clear cortex.
14	M	54	Good.	Immature Senile O. S., V.=20-100	Good.	March 20, '94.	Cocain 10 per cent. simple; very little cortex remained.	Uneventful.	14	20–20	Apr. 23; cortex absorbed.	20–20+	Nuclear cataracts.
15	M	31	Good.	O. S. Soft, traumatic partly opaque, Ant. cham. 3/5 normal.	Good.	May 1, '94.	Cocain 10 per cent. simple; incision 1/8 cornea; about half of the lens substance remained.	Uneventful.	12	4–200	July 30; cortex almost entirely absorbed.	20–20+	Cataract due to gummatous iritis.
16	M	64	Good.	Traumatic Senile, Ant. cham. very shallow.	Good.	May 15, '94.	Cocain 10 per cent. simple; incision very small, enlarged with scissors.	Uneventful.	20	20–50	No decision.	Nov. 6, '94. 20–20	V.=20–20 April 6, '95.
17	M	57	Good.	Immature Diabetic.	Good.	May 15, '94.	Cocain 10 per cent. simple; very little cortex remained in the capsule.	Uneventful.	11	20–50	June 26.	20–20+	. . . . .
18	M	50	Good.	Immature Senile.	Good. V.=10-200	April 25, '94.	Cocain 10 per cent. simple; some cortex remained.	Uneventful.	9	20–50	May 19.	20–20	. . . . .
19	M	67	Good.	Immature Senile.	Good. V.=10-200	July 3, '94.	Cocain 10 per cent. simple; some cortex remained.	Uneventful.	12	20–50	Aug. 8, '94.	20–30	. . . . .
20	M	43	Good.	Immature Senile.	Good.	Aug. 30, '94.	Cocain 10 per cent. simple.	August 31; prolapse of iris; excised.	12	20–50	. . . . .	20–50	Lost trace of patient after the primary operation.
21	M	69	Good.	Immature Senile.	Good.	Oct. 30, '94.	Cocain 10 per cent. simple; some cortex remained in capsule.	Uneventful.	12	20–40	Nov. 20, '94; lens cortex absorbed.	20–20+	. . . . .
22	M	67	Good.	Immature Senile.	Good. V.=15-200	March. 5, '95.	Cocain 10 per cent. simple; some lens cortex remained.	Uneventful.	13	16–200	. . . . .	20–40	. . . . .
23	M	51	Alcoholic.	Immature Senile.	Good. V.=12 200	March 11, '95.	Cocain 4 per cent. simple; some lens cortex remained.	Uneventful.	12	20–40	Apr. 9, '95.	20–15	Lens cortex completely absorbed.
24	M	42	Good.	Immature Senile Nuclear.	Good. V.=18-200	March 19, '95.	Cocain 4 per cent. simple; some lens cortex remained.	Uneventful.	17	20–40	Apr. 23, '95.	20–20+	Lens cortex absorbed.
25	M	42	Good.	Immature Senile, Nuclear.	Good. 20-100	March 26, '95.	Cocain 4 per cent. simple.	Uneventful.	17	20–50	Apr. 27, '95.	20–20+	. . . . .

20–70 was obtained. One case was that of an immature traumatic cataract following a blow on the eye. A simple extraction was performed. Vision of 20–40 was obtained. Posterior cortical cataract, one case. Simple extraction was performed. But very little difficulty was experienced in freeing the eye of the greater portion of the cortical substance. Vision of 20–20 was obtained.

Immature diabetic cataract, one case. The extraction, after the simple method, was not accompanied with difficulties. Vision of 20–20 + was obtained.

There were twelve cases of ordinary senile cataract, four of which were of the diffuse nuclear variety which develops very slowly. Simple extraction was performed in all and was not accompanied with unusual difficulty. Some cortical substance remained in

almost all cases, but was absorbed almost if not entirely in a few weeks, giving no trouble. No iritis occurred in these cases. Prolapse occurred in one case only and was probably due to traumatism. The healing in these cases was uneventful and the vision eventually obtained was extremely satisfactory. The immediate vision was 20–20— two; 20–30, one; 20–40, three; 20–50, six; 16–200, one; 4–200, one.

The ultimate vision after discission in twelve cases: 20–15, one; 20–20+, six; 20–20, two; 20–30, one; 20–40, one; 20–50, two.

In the twenty-five cases there were no losses. Iridectomy was done in six cases. Simple extraction in nineteen cases. One prolapse occurred. Discission was done in twenty cases.

The ultimate visual results were as follows: 20–20 or better, thirteen; 20–30, two; 20–40, three; 20–50, two; 20–70, five. The youngest patient operated upon was 17 years, the oldest, 75 years. The mean, 45¼ years. In all cases the remaining cortex absorbed almost, if not entirely, either before or after discission was performed.

The results appear to the writer to be as favorable as those obtained by the removal of cataract ordinarily, at the stage of maturity, and the relief to the patient was in many cases very great, saving them one, two, or even more years of idle waiting.

The difficulty of removing immature cataract is greater than that of removing mature cataract and should be done by expert operators. In the hands of expert operators the danger is little more than where the lens is ripe.

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DISCUSSION ON PAPERS OF DRS. BAKER AND WEEKS.

Dr George E. Frothingham, Detroit, Mich.—In regard to the paper of Dr. Baker I will say that I agree in the main with the views of the author. While I think it is the experience of most of us that any considerable opacity of the lens never fully clears up, slight opacities may nearly disappear; and we find commencing cataract at times due to change of nutrition of the lens, dependent upon disease of the choroid or some constitutional disease, that may be relieved, and with the effect to retard or arrest the development of the cataract. I remember one case in my practice in which the development of a cataract evidently due to choroiditis has apparently been arrested; at any rate it has made no progress for about seven years. With the conclusions in Dr. Baker's paper, I fully agree. They are in accordance with the general principles that in incipient cataract we should make a careful and thorough examination of the eye and of the general condition of the patient and remedy any pathologic conditions so far as we can.

In regard to the paper of Dr. Weeks, it deals with a most important subject. Fortunately we are not often called upon to hasten the maturity of the cataract. In some cases, however, where both eyes are about equally affected and advance very slowly and the condition of the patient will not allow of waiting for the natural process of ripening, we are forced to decide between extracting an immature cataract or attempting to hasten the maturity by some operation. Of the various operations that have been devised I think that Förster's is the best and safest. Although it will sometimes fail to hasten the progress of development, it is attended with very little danger. It will lead to iritis in a certain per cent. of cases but the worst result I have ever seen was a slight synechia. The pupil should be kept well dilated after the operation until all danger has past. If the operation fails to hasten maturity it will allow of the extraction of the immature cataract with the greatest possible degree of safety. If I were the most ardent advocate of simple extraction, I would make an exception in the case of immature cataract. I make in all cases a preliminary iridectomy, and after all irritation has completely subsided and the eye has perfectly recovered from the effect of the operation, if it has failed to produce ripening of the cataract, I then extract the immature cataract, making a peripheral incision in the capsule as a still further safeguard against dangerous reaction from any lens matter that may remain in the eye.

Dr. Herman Knapp, New York—As to heat producing cataract, I know of one case where I produced a cataract by the galvano-cautery point with which I burned off the apex of a keratoconus too cautiously, *i.e.*, too slowly pierced the cornea. I wanted to make only a very small puncture in the cornea. I obtained this end, but a slowly developing yellowish cataract was the result and had to be extracted. Whether outward heat for instance, in fireworkers, is a notable factor in the development of cataract, I am not prepared to say. About thirty years ago, I saw a lens of a diabetic patient rather quickly become opaque and soon after clear up. The observation though not fully accurate has remained vivid in my mind, and ever since that time I have watched the progress or regress of cataract, but the above example has remained the only one, and therefore has no appreciable value. Unripe cataracts not infrequently place us in the alternative of removing a cataract prior to the time when the patient's chances of a good recovery are greatest, or to let a patient wait an indefinite length of time for that most favorable period. The vogue into which the ripening operations have come is thus easily accounted for. They would be a godsend if their action were certain and free from danger. Unfortunately many an operation for ripening has been done without producing any effect; on the other hand, these operations have proved injurious by provoking iritis and its consequences, and some by a degree of deleterious morbid process (plastic and purulent irido-cyclitis and panopthalmitis). Even if these mild or severe reactions occur only exceptionally, we are mortified to have created by our own hands any conditions that dim by complications the chances of the patient, when the chief operation, the extraction, has to be undertaken. I, for my part, thus prefer the risk of dealing with remnants by a secondary discission, to the double operation of ripening and extracting the lens which in a majority of cases requires a subsequent division also to clear the pupil.

Dr. Joseph A. White, Richmond, Va.—In regard to Dr. Baker's paper on the etiology of cataract, I am satisfied that the explanation of Dr. Risley, attributing the opacification of the lens to disturbance of its nutrition by pathologic processes in the uvea, especially the choroid, is correct in a large number of cases, while not generally applicable. All of you, as well as I, have examined many cases of cataract after extraction where there was no choroidal disease nor any other evidence of a pathologic process inside the eye, and consequently I am satisfied that there are many cases of cataract in which the etiology is to us an undiscovered factor, and that much yet remains to be found out in regard to this subject. Why in one person an opacification of the lens remains stationary and in another is progressive, is also a question yet to be solved. That this is true we well know for in zonular cataract we have it progressive in one, and stationary in another case. Why can not therefore, opacification of the lens remain stationary in adults? I know of a case of a young man who received a blow in the eye several years ago, which by *contra coup* without wound of the cornea, ruptured the iris at its pupillary edge and also the capsule of the lens in direct line with the iritic wound. A small opacity of the lens developed at this point and to this day remains stationary. Cataract has not followed nor has the opacity disappeared. As to the disappearance of lenticular opacities, I have had very little experience, my only case being the one referred to by Dr. Baker. This case was one with marked anterior central opacity of the lens sufficient to materially decrease vision, and cause a semi-blindness with a contracted pupil. He wished to have the cataract removed and submitted to the ripening process of paracentesis and external massage with great hopes of having a ripe cataract in a few weeks. His next visit showed a decided diminution in the size of the opacity. I triturated the eye again. Result, three weeks later, a perfectly clear lens. Now either this opacity of the lens disappeared or I made a mistake, but every precaution against an error had been taken. The pupil was gray when it was contracted and there was no ophthalmoscopic reflex with dilated pupil; the fundus was illuminated around the opacity and the vitreous was clear. The opacity moved up and down, with the eye locating it either in the anterior part of the lens or the cornea, and it certainly was not in the latter; hence I concluded that it was a case of partial opacification of the lens that had cleared up; how or why, I don't know; what the massage had to do with the result I am unable to say. Like other sclerosing processes, and I suppose we may so consider cataract, it may come to a standstill or it may even retro-

grade toward recovery, although such cases are rare. To discuss Dr. Weeks' paper would take more time than is allowed me. I have already, however, gone on record to some extent in regard to immature cataract. I presented to this body a paper on that subject several years ago in which I suggested the adoption of a simple process of ripening immature cataracts by paracentesis and external massage without iridectomy, because I had had bad results in Förster's operation from iritic processes. I reported a number of cases then and have done others since, and have had exceptionally good results—no bad ones. I have been lucky, I suppose. Like Dr. Knapp, I think the less traumatism an eye is subjected to the better, and hence I never ripen an immature cataract if the case will wait for nature's processes, and then only if the patient is under 60 years of age, because I thereby break up and loosen the cortex from the capsule, simplifying the extraction. Over 60 years of age, I extract without waiting for maturity, but it is difficult to say what the latter signifies, as it does not mean the same to each one of us. For instance, a patient may be too blind to move about with assistance, and the cataract be still immature; and again sight enough to see large letters may be present, and the cataract be perfectly ripe. This especially applies to those amber-tinted cataracts in old people which never become perfectly opaque and hence relatively are immature, while in reality they are perfectly ready for extraction.

DR. J. L. THOMPSON, Indianapolis—I wish to say that I have seen a well-marked unmistakable case of cataract disappear spontaneously. I had every opportunity of watching it for years before and several years also after the clearing up of the lens. As I have published the case with all of its complications, I shall only add that this case of spontaneous cure of a cataract by liquid degeneration within the capsule was more clear to me than is the well-known fact that this world of ours revolves upon its axis.

DR. JAMES A. LYDSTON, Chicago—A few points bearing on the subject matter as presented in the paper, suggested themselves as the paper was read and discussed: I believe that we go a little too far in assuming in all cases in which lenticular opacities disappear, that we have a true cataractous formation, for we know that cataract exhibits a process peculiar alone to itself during the formation stage and, indeed, one that is quite characteristic. Becker has done more to enhance our knowledge with respect to cataract than any other investigator in this line, and he has shown that primarily cataract develops by the formation of vacuoles as little air chambers distributed through the lens structure and that these subsequently become filled with fluid of a different density from the remaining lens substance, and finally, there is a separation of the nuclear and cortical portions of the lens from the lenticular capsule constituting light cataract. Now in many instances in which lenticular opacities disappear spontaneously, it seems that we are not confronted by a true cataractous formation. Still we have opacities occurring in cases in which the capsule has been punctured and subsequently closes. Here we may have spontaneous disappearance. But I seriously doubt the propriety of accepting the statement that any form of diabetic cataract ever spontaneously disappears, as we know such changes only assert themselves in the later stages of diabetes when our case is almost beyond redemption. We have cataract arising from large doses of naphthalin or ergot and those arising from concussion, etc., and it seems that possibly these are the types of cataract, erroneously so called, which are capable of spontaneously disappearing and which are all grouped under the heading of incipient cataract.

DR. F. C. HOTZ, Chicago—My experience with the ripening processes of immature cataracts has not been satisfactory. In some cases no change in the lens was produced; in a number of cases the manipulation was followed by more or less decided cyclitic irritation. I have many years since given up all attempts at ripening, and have not felt induced to return to the attempt even by the favorable report Dr. White gave of his cases at the Detroit meeting. As to the extraction of immature cataract, I find the operation does not involve greater danger than the removal of a fully mature cataract, provided there is not a very large amount of absolutely transparent lens matter. But where this is the case the patient's vision is usually still so good that there exists no urgency for an operation. In the slowly progressing opacification which starts in the cortex and therefore early causes great disturbance of sight the lens seldom, if ever, becomes absolutely opaque. It appears quite opaque at focal illumination but proves transparent for the ophthalmoscope so that the fundus can be seen although through a mist. In this form of cataract the whole lens is a piece of yellowish jelly and it comes out *in toto*, leaves a clear pupil and the healing is as smooth as after the extraction of a ripe cataract.

DR. S. D. RISLEY, Philadelphia—Dr. Baker has very courteously noticed my published observations regarding the etiology and treatment of incipient cataract. I rise to call attention to a single point in which he has failed to interpret quite correctly some ambiguous sentence in my paper on the subject. While in the eighty cases of incipient cataract there reported, it seemed the treatment addressed to the choroidal disease had arrested the progress of the opacification of the lens. I think it is stated there that in no case had I witnessed the disappearance of opacities already formed.

DR. A. J. ERWIN, Mansfield, Ohio—At the Detroit meeting in 1892, I read a paper on this subject, in which I brought forward ten cases that I had treated in periods of from four to ten years previous to that time, in which there had been no increase of the opacity from the time treatment was begun. Since then, one-half of those cases have died, and none of them required an operation of any kind for cataract during life. Four are living and under my observation; one has disappeared. In these four cases no increase of opacity has occurred as yet. In one-half of the cases there was at least one opaque lens—mature cataract. I think that some of them belong to that class of cases that never will mature. There was not much improvement although some amount of vision in nearly every case, but there appeared to be a complete stopping of the advancement of the opacity. My treatment as I gave it on that occasion was iron tonics, with cleansing and iodin applications about the eye. I have made up my mind since that the application of weak solutions of iodin applied daily in some cases is the most important part of the treatment, and that the best solution is that of about one-half the strength of the officinal tincture.

DR. DUDLEY S. REYNOLDS, Louisville, Ky.—It is unfortunate that gentlemen who speak of stationary opacities of the lens fail to state more definitely the character and precise location of those areas of opacity. We are all familiar with the peripheral opacities of the lens observed in childhood and remaining nearly stationary through life to advanced age. Traumatic opacities of the lens often remain distinctly circumscribed for years. I have in mind the case of a student who has a foreign body encysted in the upper portion of the lens, midway between the periphery and the vertex, and which has remained more than four years without any disposition to increased opacity beyond the small area of the wounded portion.

DR. J. E. WEEKS, New York—I am glad to hear the expressions given against the artificial methods of ripening cataracts. I think it will not be long before such methods will be entirely abandoned.

PRACTICAL POINTS IN ANESTHESIA FOR PLASTIC OPERATIONS ABOUT THE EYE.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

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A perfect anesthetic would render the patient completely insensible to pain, without in the slightest degree endangering his life. Unfortunately this has not been discovered, and we must select that which best meets the requirements of the particular operation to be performed. I shall avoid entirely discussing the broad subject of anesthesia with its relations to surgery in general, and confine myself to some of the practical problems presented by operations about the eye.

Those plastic operations which come within the scope of the ophthalmic surgeon involve tissues controlled by the very mobile facial muscles, and it is desirable to avoid the disturbance of relation which would result from their activity.

Again, operations of this class, for cosmetic reasons, and because they usually have for their object

the preservation of the eye, require great care in the selection and adjustment of flaps, and consume much time. As a consequence of these facts, they demand complete and prolonged insensibility, with the least possible danger to life. The value of unconsciousness in operations about the eye must not be forgotten; it prevents mental suffering and possible interference on the part of the patient.

Beginning with the general anesthetics by inhalation, we have in nitrous oxid gas, an agent which meets two of our conditions perfectly, but by reason of the very transient character of its effect, is only suitable for the most trivial operations. The contest between chloroform and ether for acceptance as the general surgical anesthetic, is still in progress with slight hope of an early final decision, but we will be safe in assuming that ether is distinctly safer for prolonged administration. The marked early irritation of the fauces, and greater tendency to produce nausea, do not weigh against the decreased risk. Bromid of ethyl has had a revival recently; it possesses most of the good and all the bad qualities of chloroform; death has certainly resulted from its use.

As the imposed conditions of complete and prolonged anesthesia, with the minimum of danger, seem to be best fulfilled by ether, it will be proper to discuss briefly its administration where this bears upon our subject. In all details of surgery, the personal equation is large and the particular kind of tool is of minor importance. There are, however, practical points which should be considered. The region involved, especially when dealing with the lower lid and cheek, is so near the respiratory openings that large or complicated inhalers are to be avoided. My own experience while house surgeon at Wills Eye Hospital, led me to depend entirely upon two layers of a coarse, soft towel, which can be very readily molded about the mouth and nose without encroaching upon the field of operation. The moistened center of the towel directly over the nostrils and mouth should, for mechanical reasons, be kept from actual contact with these openings. This simple method has the great additional advantage of surgical cleanliness, as fresh towels can be substituted whenever vomiting or the regurgitation of mucus make it desirable. I am quite sure that many operative wounds have been infected by inhalers, which owing to their size and rigidity, could not be kept from contact.

Of the available methods for producing insensibility, limited to the locality of operation, the simplest is that of freezing by the direct contact of salted ice, which has a limited field of usefulness in preventing the pain from applications of the cautery, and like rapid measures. It is, however, unfit for prolonged plastic work. The various freezing methods by spraying volatile liquids, as ether, ethyl, chlorid and rhigolene, are distinctly more readily adopted to varying conditions of contour and extent of surface, but have the same limitations. The peculiar difficulty in protecting the eyeball from irritation, and the brief duration of the effect are the main objections. Even when used with the greatest care, the intense cold produced by these sprays sometimes does notable damage to the skin, and the nutrition of future flaps must always be more or less endangered.

Concerning the induction of local anesthesia by forcible infiltration of the tissues with benign solutions, little need be said. The method is ingenious and an addition to our resources in cases where for any reason both cocain and general anesthesia are impossible. It presents most of the objections applying to the subcutaneous use of cocain, while the fact that insensibility is limited to the actually edematous tissue, render it useless for the class of operations being considered.

Cocain remains at the present day the one local anesthetic agent which has stood practical tests. Other substances undoubtedly possess the power of more or less completely abolishing the sense of pain in tissues to which they are applied, but for various reasons they are of purely theoretical interest. Tropococain, a very closely allied drug, has excited some interest, but the slight advantages claimed for it are not established. For plastic operations wholly within the conjunctiva, pain may be entirely abolished by using locally a 3 to 5 per cent. aqueous solution of cocain muriate, the ready penetration of the solution into the sub-conjunctival tissues rendering injections into the latter unnecessary. Gelatin disks and oily solutions are unsuitable. Where the skin is invaded to a limited extent only, and the operation is of a kind to permit rapid completion, as in canthotomy, this simple method will suffice. The well-known effect of the prolonged action of cocain upon the corneal epithelium may be modified by occasionally moistening the latter with a solution of boracic acid.

Absorption of cocain solutions by the skin is very slight, and applications to it produce practically no effect. This is even true concerning long contact of strong solutions with the carefully prepared and extremely thin integument of the lid, so that the possibility of operation depends largely upon the patient's endurance. Subcutaneous injection however, may cause a very complete anesthesia of all immediately surrounding tissues. The extent of its influence depends principally upon the anatomic peculiarities at the point of injection, and, broadly speaking, bears inversely a close relation to the density of the tissues. The superficial layers of the skin are always last to lose sensibility, hence the injections should, when possible, be made directly into it. About the eyelids, however, the skin is so very thin and so readily affected, that it is of less moment. The needle punctures are painful, and their number should be reduced as much as possible by employing a long needle and thrusting it in the direction of the projected incision. By gradually emptying the syringe during its withdrawal, a considerable region can be reached at each puncture. This familiar procedure is of great value, especially when for any reason general anesthesia is undesirable, but there are several drawbacks to its routine use. Owing to the number of punctures required, and the peculiar construction of the injecting syringe, the greatest care is necessary to prevent the introduction of septic matter, and consequent serious interference with the healing process. The danger of serious results from such a mishap is of course greater where the tissues are subjected to violence of the kind necessary in transplantation.

Another objection is based upon the violence done the tissues by forcibly introducing an irritating fluid, the chemical and physical effects of which must influence unfavorably the nutrition of the flaps. In the various forms of grafting this objection holds with peculiar force, because here the one grave danger is death of the graft. While the matter is to some extent one of idiosyncrasy, and not easy to an-

ticipate, the danger of serious and even fatal intoxication by cocain must be guarded against by using solutions not exceeding 2 per cent. in strength, and never injecting more than 2 to 2.5 grains. The recumbent position also decreases the danger. Finally, it should be remembered that cocain has little power over very hyperemic and inflamed tissues. Very briefly then, my conclusions may be stated as follows:

1. Plastic surgery about the eye requires complete and prolonged anesthesia with the minimum of risk to the patient, and which can be induced without impairing the life of the tissues, or infecting the wounds.

2. Ether, among general anesthetics, best meets these demands. The method of administration should be simple, cleanly, and avoid encroaching upon the field of operation.

3. Cocain is the only suitable local anesthetic. For the conjunctiva it may be applied to the surface in 2 to 4 per cent. solutions. When the skin is involved, subcutaneous injection becomes necessary. The punctures should be few and the dose not exceed 2.5 grains.

TRANSPLANTATION OF SKIN IN PLASTIC OPERATIONS ON THE EYELID.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WALTER B. JOHNSON, M.D.

PATERSON, N. J.

The transplantation of skin flaps in plastic operations upon the eyelid, by the method in vogue at present, is the result of a gradual development in the size of the portions of new tissue to be transplanted. The method of supplying new dermal tissues where loss of skin had resulted from accidents, burns or other causes, was originally introduced by Prof. J. L. Reverdin, of Geneva, Switzerland, in 1869. It was called "skin grafting," and consisted in the application to granulating surfaces of very small portions of epidermis snipped from the skin of a living subject, care being taken that the dermis should not be included in the graft. The grafts were applied to the diseased surfaces and resulted in the formation of new cicatricial tissue, which was undoubtedly the product of the proliferation of the transplanted elements. Thiersch, Pollock, Bryant and others adopted the method, increasing the size of the grafts and including the cutis as well as the cuticle, believing that the proliferation occurred from the dermis as well as the epidermis. Fiddes reported cases in the *Lancet*, of new tissue formation resulting from the proliferation of epidermal scales scraped from the skin by a long bistoury. The method rapidly came into general use; it is, however, only skin grafting, the implantation of a nucleus for the formation of cicatricial tissue and not transplantation of true skin.

The implantation upon granulating or fresh cut surfaces of large skin flaps from adjoining parts was introduced by Tagliacozzi many years before the possibility of skin grafting was thought of. He carefully dissected a portion of skin from a point near the surface to be covered, retaining at its base a pedicle through which the flap was to receive its nutrition. Modifications applicable to various locations were suggested by different operators. The procedures recommended for the plastic surgery about the eyelids were not wholly satisfactory, in consequence of the unsightly cicatrices at the point of removal of the flap, the thickening about the pedicle and the frequency of ulcerative processes intervening, which resulted in still more serious deformity than existed prior to the operation.

In 1878, Mr. J. R. Wolfe, of Edinburg, reported in the London *Medical Times and Gazette* of June 3, a new method of "the transplantation of skin flaps from distant parts without pedicle." Following this, operations were successfully performed and reported by Wadsworth, Noyes, Aub, Mathewson and others. The many advantages of the procedure led to its immediate adoption by ophthalmic surgeons. The object of the operation is the transplantation of healthy skin flaps to the required situation, the agglutination and healing by first intention, the permanent adhesion of the healthy new tissue at the point of implantation, and the relief of the existing deformity.

The skin selected for transplantation must, as nearly as may be, approximate the conditions and quality of the skin at the location to which it is to be transplanted; an allowance of fully one-third must be made for shrinkage of the flap, all areolar tissue must be carefully removed, the flap must be dipped in tepid water and then thoroughly dried, the site of operation must be carefully prepared, and if the transplantation is to be made on the day of operation, all small blood clots and other detritus must be removed. In some cases it is desirable, especially if arteries have been tied, to allow an interval of two or three days to elapse between the time of the preparation of the wound and the application of the flap, as sepsis may affect the flap if sloughing of any of the tissues occur. Before transplantation the granulating surface must be very carefully washed and dried; the prepared flap is then applied and gently pressed into position where it will adhere like sticking plaster. The wound is then dressed; no sutures are recommended, although in many of the cases reported, catgut or other sutures have been used; sheet lint compress and bandage is applied and allowed to remain *in situ* for four days. Great care should be used in removing the dressing, lest the flap be torn from its new adhesion by dragging. Gold beater skin plaster is often used next to the flap.

The following case was operated upon successfully by the Wolfe method:

H. T., age 3, colored. Applied at the Paterson Eye and Ear Infirmary for treatment, stating that six months ago he had received an injury of the right eyebrow from falling upon a stone step. The injury was followed by excessive swelling and subsequent inflammation. The family physician made an incision and a large quantity of pus was evacuated. The wound closed on two occasions and reincision was necessary. Extensive destruction of the skin of the upper eyelid resulted from ulceration which occurred during the stages of acute inflammation and was never at any time entirely healed. The contraction of the cicatricial tissue thus formed produced complete eversion of the upper eyelid, as shown in plate No. 1.

August 2. Upon admission, the child was in apparently good physical condition. There was eczema about the face resulting from the excoriation of the ichorous discharges from the eye. The ectropion of the right upper eyelid was so extensive that cicatrical tissue about 3 lines in width separated the ciliary margin of the lid and the eyebrow. The everted palpebral conjunctiva was swollen, thickened and rough, bleeding upon the slightest touch. Almost all of the retro-tarsal fold was exposed and it nearly concealed the eyeball; there was a deep central ulcer of the cornea and a constant discharge of thick muco-pus.

The patient was etherized and an incision made, exposing the frontal bone which was diseased. The carious bone was removed and the wound dressed. After the opening closed, the ulceration healed, the swelling of the lid decreased under

proper diet and palliative medication. The cicatricial contraction resulted in an increased eversion of the lid.

September 25. The patient was again etherized, and an incision was made midway between the brow and the edge of the lid 1⅛ inches in length; the lid was carefully dissected, the attachment of the cicatricial bands divided and the edge of the upper lid stitched to the lower. The result of this procedure was a large gaping wound 1⅝ inches in length and ⅞ inch in width in the median line. An elliptical incision was made on the inner side of the left thigh 2⅝ inches in length and 1¼ inches in width at the largest diameter of the ellipse. The skin within the lines of the incision was carefully dissected from the leg and all areolar tissue

Figure 1.

removed. After preparation, the flap measured nearly two inches in length and about one inch in width in its widest part. The flap and the wound were rendered aseptic; four fine catgut sutures were used to unite it to the edges of the wound, gold beater skin plaster was then placed over the new lid and the eye dressed with a compress bandage.

September 29. The dressings were removed, care being taken to prevent dragging upon the flap, the stitch uniting the eyelids and the stitches from the end and center of the flap were carefully cut and drawn out. The transplanted skin flap seemed to have united in its new location although it presented a grayish appearance, externally, which looked

Figure 2.

like semi-transparent glass. The pigment deposit in the deeper layers was so dark that it appeared as if sloughing of the entire flap was imminent. There was no purulent discharge. The eye was dressed with plaster and bandaged as before.

October 2. The dressings were again removed and a thin gray membrane nearly the size of the flap came away with the plaster. This was at first believed to be the flap itself. On closer inspection, however, the entire surface of the new lid presented a peculiar appearance of semi-granulation points of reddish color. The excessive pigment deposit having materially lessened, a glazing which seemed to be the result of a deposit of thick viscid mucus indicated the formation of a new layer of epidermis. The dressings were reapplied.

October 4. The eyelid when exposed disclosed the presence of a grayish membrane with commencing pigment spots which covered the entire field of the operation.

October 6. The membrane has assumed the appearance of newly formed skin; the lid maintains its natural position; there has been very little purulent discharge during the recovery. After this date the skin became more natural in appearance, softness and pliability. No unfavorable symptoms occurred. There was complete relief of the deformity. The eyelid could not, however, be elevated to the extent of that of the fellow eye. The accompanying plate, No. 2, illustrates the condition six weeks after the treatment was discontinued.

SKIN GRAFTING ON THE EYELIDS.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY F. C. HOTZ, M.D.

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Skin grafts play an important rôle in the plastic operations upon the eyelids; they are especially serviceable in certain forms of ectropium and entropium.

1. *Skin Grafting in Ectropium.*—If the destruction of the integument of the eyelid has been so extensive as to result in a more or less complete ectropium, the lid can not be restored to its normal position unless it be provided with a new integument.

The material for this new covering may be obtained from three sources, to-wit.: we may transplant upon the lid a skin flap from the vicinity; or we may graft upon it a piece of skin from the arm (Wolfe's method); or we may cover the whole defect with Thiersch's grafts.

If executed under the proper aseptic precautions, these different plans are probably equally successful as far as the immediate healing of the implanted material is concerned. And those who are satisfied with their work as long as it removes the ectropium, no matter how the eyelid may look after the operation, consider one method as good as the other. But we come to a different estimate, if we demand of a plastic operation in the face that it should not only relieve the pathologic condition, but also restore, as well as it is possible, the normal appearance of the parts; or, in other words, that we should not be satisfied with the mere removal of the ectropium, but insist that the operation should also give back to the lid its normal shape and mobility.

The normal integument of the eyelids is a thin, soft and light cover which snugly adapts itself to the contours of the lid and to all its movements, which play so important a rôle in the facial expressions. It is, therefore, very essential that the new substitute possesses all these qualities of the original lid skin: it must be thin and soft, in order to bring out the normal shape of the lid; and it must be light, so as not to impede by its weight the movements of the lid. This latter condition is of particular importance in the operation for ectropium of the upper eyelid. Skin flaps taken from the vicinity occasionally—but very rarely—possess all the conditions necessary for a perfect cosmetic result; usually they are too thick and too heavy to make a nice looking eyelid. The same objections apply to Wolfe's flaps, which, in my opinion furnish the least suitable material and should never be employed for plastic work on the upper eyelids.

There remains then for our consideration Thiersch's skin grafting operation, which I regard as a priceless accession to plastic surgery; for it has solved the difficult problem of repairing the eyelids with a material possessing all the important attributes of the lid skin; and it gives us results in every respect superior to what can be achieved by the transplantation of skin flaps.

How skin grafting should be executed, what rules and precautions should be observed to attain the best results, I think, can best be shown by briefly describing the way of proceeding in a case of ectropium of the upper eyelid. An incision is made through the cicatricial tissues along the line of the border of the everted lid; and while the lid border is then drawn downward, all resisting cicatricial bands are cut transversely by gentle passes of the scalpel. This dissection is continued until the lid can be easily inverted and its free border can be drawn downward far beyond its normal position so that it describes a convex line. In this position the lid border must be fixed during the healing process, and this is accomplished by three ligatures, which are passed through the lid border and securely fastened on the cheek by adhesive plaster strips. But if there exists, also, an ectropium of the lower lid of the same eye, I pass the ligatures through the border of the everted lower lid and tie to it the border of the re-inverted upper lid.

The object of thus fastening the operated lid is twofold: 1, to make the surface which is to be covered with skin grafts, so large that the new lid skin will not become too short by the subsequent inevitable contraction of the tissues; and 2, to keep the lid immovable during the healing process, because any movements would displace or wrinkle up the grafts and render impossible their adhesion to the lid surface.

When the lid is properly fastened, the wound is temporarily covered with a gauze compress wrung out of a .5 per cent. salt solution, and we proceed with cutting the grafts. The most convenient place to take the grafts from is the right or left arm. The arm we intend to operate upon has several hours previously been thoroughly washed and scrubbed with soap and water and wrapped in a compress wet with the salt solution. The bandage being removed, I grasp the arm firmly with the left hand, in order to hold the skin well stretched between the thumb and the fingers. With my right hand I seize the razor, lay its blade flat upon the well wetted surface of the arm and press it down just enough to make its sharp edge bite into the skin, but no deeper than the papillary layer. By slow and short sawing movements the blade is now steadily pushed on in the papillary layer until a piece of epidermis of the desired size has been gathered on the razor blade. During this "shaving process" my assistant is dropping salt solution upon the blade and pushes with a probe the skin shaving back from the edge of the razor. When I wish to cut the shaving off, I turn the edge of the knife a little up, while my assistant presses the probe flat down upon the shaving near the edge of the razor blade. Now the compress is removed from the lid; the wound is carefully cleansed of all coagulated blood, and the skin shaving is transferred directly from the razor to the lid surface. For this purpose plenty of salt solution is dropped on the razor to keep the graft floating; if, now, the edge of the razor near its point is brought in contact with the border of the wound, the solution will run off from the razor and carry the graft with it; but as soon as the solution begins to flow and the edge of the graft has come in contact with and clings to the wound border I slowly draw the razor from under the graft across the wound, by which maneuver the skin graft floating from the razor is at once spread out smoothly over the lid surface.

Some advise to place the grafts as they are removed, in salt solution until the requisite number is cut and then transfer them from the solution to the lid. I regard this as an unnecessary complication of labor; for in the solution the grafts curl up, and it takes then a great deal more time to uncurl and spread them out smoothly than if they are transplanted directly from the razor to the wound.

It is not necessary to cover the whole wound with one single graft, but, on the other hand, I think better results are obtained if the grafts are few and large than if they are very many and very small. It is not difficult to cut shavings from one and one-half to two inches in length and from one to one and one-half inches in width, if only the knife blade is operated by a steady hand and moved in the same plane.

When the whole wound is well covered with these skin shavings, I cover them with two layers of strips of silk protective moistened with the salt solution; they are one-half inch wide and long enough to lap over the wound border on both sides; one layer is placed in a transverse direction and the second layer in a longitudinal direction. These strips are covered with a compress which is to be kept wet with the salt solution, and finally a bandage is put on the well eye also, to stop all movements of its lids, because thereby alone we can insure the absolute rest and immobility needed for the operated eyelid during the healing process.

This first dressing remains undisturbed for two days at least. To remove it the compresses and strips of protective are thoroughly wetted with salt solutions; the grafts are rinsed with the same solutions, and fresh strips and compresses are put on. After four or five days the good eye may be left open; after one week the ligatures may be removed, and during the second week the grafted lid needs only to be daily rubbed over with iodoform ointment; for at this period there is a constant desquamation going on and the lid becomes uncomfortably stiff and crusty with exfoliated epidermis scales unless the surface is kept well anointed. After the second week no further treatment is required. The grafted skin undergoes a gradual contraction of about one-fourth of its area, but if this shrinkage has been anticipated by the operator, it will not affect the perfect cosmetic success of the operation.

2. *Skin Grafting in Entropium.*—The correct position of the eyelashes is so thoroughly dependent on the presence and correct positions of the free border of the lid that no permanent relief of entropium can be attained by any operation which fails to reconstruct the lid border. As long as the tarsus is thin and elastic, the inverted border can be successfully turned back to its normal position by the operation introduced by me in 1879. But in the higher degrees of entropium, the tarsal cartilage has usually undergone structural changes and lost its elasticity to such a degree that its rigidity is a serious obstacle to the turning back of the free border. Under these circumstances the re-position of the inverted lid is possi-

ble only, if a wedge-shaped piece is removed from the cartilage. This operation, however, can be carried out successfully only in cases where the tarsus has sufficient thickness to allow the removal of a wedge of the requisite size; but in many cases we find the cartilage so thin and small that the cutting of a sufficiently large groove is impossible. Under these circumstances skin-grafting helps us over the difficulties; for if we can not turn back the inverted lid border, we may turn up the eyelashes and support them in their correct position by an artificial lid border made of a skin graft. And although I myself once advocated a grooving operation[1] I have abandoned it, because I have convinced myself that the creation of a new lid border answers our purpose much better and is a less tedious operation than the grooving; beside it can be used in all cases of extreme entropium.

The first attempt at creating an artificial lid border is found in Spencer Watson's operation; from this crude beginning the operation has been gradually improved by a process of evolution in the various transplantations of Gayet, Dianoux, Jacobson and others, until skin grafting has brought it to its present perfect and simple form.

It is executed in the following manner: the lid border is split into an anterior and posterior layer by the well-known intermarginal incision which is made so deep that the anterior layer can be turned up with perfect ease.

Now I make a transverse incision through the lid skin and orbicularis muscle just below the upper line of the tarsal cartilage, excise the strip of muscular fibers covering the upper border of the tarsus and unite the lid skin with this upper border by three sutures, one suture being placed at the center of the wound and one at either side. Each suture passes first through the edge of the lid skin, then through the upper border of the cartilage and finally through the upper skin border of the wound. When these sutures are tied, the lid skin is drawn upward and fastened to the upper border of the cartilage; and this traction upon the lid skin is sufficient to cause a thorough eversion of the anterior edge of the split lid border; and when the anterior edge is thus everted and drawn away from its posterior edge, the intermarginal incision is transformed to a gaping wound of several millimeters in depth and with sloping edges. This groove is to be filled by a skin graft. Sometimes I have used for this purpose a narrow strip trimmed off with scissors from the skin edge of the lid wound; but I prefer taking the graft from the skin behind the ear where the skin is of a firmer texture and where the presence of a smooth bone surface to which the skin is so closely attached is a great assistance in the accurate cutting of these long and slender grafts; for as they are to be but from 1.5 to 2 millimeters in width, it is very essential that the skin does not drag before the knife, because this would make the edges so ragged as to render the graft unfit for use.

I first make a longitudinal incision 1 millimeter deep and as long as the graft should be. A second incision is then made parallel to the first one at a distance of 1.5 to 2 millimeters according to the width of the intermarginal groove the graft is intended to fill. This second incision is made to join the first one at both ends and also to meet it at the depth of 1 millimeter, by giving the scalpel the proper slanting direction. The long and narrow strip of skin thus mapped out by the two incisions is seized by a fine forceps, completely dissected off and transferred directly to the lid-border which is carefully cleansed from blood coagula before the graft is put in place. The graft is spread out and gently pressed into the groove; if it fits accurately, the lid and the conjunctiva are once more irrigated with the salt solution, and both eyes are covered with compress and bandage in order to stop all movements of the lids. After twenty-four hours the graft is already firmly adhering and the bandage can be left off.

Should the graft be too long or too wide, its ends or edges can be trimmed with a pair of fine scissors without taking the graft off from its new resting place.

The surface of the graft should be even with, or a little below, the edges of the wound; it should never protrude beyond them; if it does, it is too thick and should be cut thinner. To do this, I turn the graft over with its epidermis side down and shave off a little of the cutis with a pair of fine scissors, and then put it back in place.

If, after twenty-four hours, the graft is not adherent, it is dead and useless; if it is adherent, the success of the operation is assured. During the first two weeks the epidermis of the graft comes off in scales, and it is therefore advisable to keep the new lid border well lubricated with vaselin, lest the dry and hard epidermis scales irritate the eye. After two weeks the surface of the graft becomes smooth and can hardly be distinguished from the rest of the lid border.

I regard the solid skin grafts described above, a better material for the reconstruction of the lid border than grafts of the Thiersch kind, or of mucous membrane. We must not forget the intermarginal wound being an angular groove, has the great tendency of closing up from the bottom and of drawing its edges together. This tendency is successfully overcome by filling the groove with a solid graft, but not by only lining it with mucous membrane or epidermis shavings.

The use of true skin for grafting has been objected to on the ground that it contains fine hairs which would be a source of irritation to the eye. Judging by my own experience, I should say this fear is groundless. I have never seen any hairs grow in such grafts and I am inclined to the belief that when such irritating hairs are found, a careful inspection will show they do not grow from the graft, but from the posterior edge of the lid border; they are eyelashes which have been left in the posterior edge when the lid border was split.

[1] Paper read before the 9th International Medical Congress, 1887.

ON THE OPERATIVE TREATMENT OF THE SEVERER FORMS OF ENTROPIUM AND TRICHIASIS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HERMAN KNAPP, M.D.

NEW YORK.

Nothing original is claimed for what I have to say. I merely beg to submit to your judgment my preference for a method of treatment, as it has developed by personal experience during years of labor in one of the most common fields of ophthalmology. With

your permission, I will introduce and exemplify my remarks by the report of a case, the only one I shall report.

Dec. 6, 1890, Mrs. F. W. C., of Boston, came to me with chronic trachoma. Both eyelids turned in, lashes irregularly scattered over the rounded free margin, many on the inner edge. Pannus over the whole cornea. V., 20–200. The inner surface of the lids showing an irregular network of cicatrices with projecting islets of swollen mucous membrane between the fiber tracts (xerosis glabra). Palpebral fissure narrowed. Constant lacrymation, some mucous discharge, incessant irritation. Daily touchings with the sulphate of copper crystal did not relieve her very much.

Operation Dec. 31, 1890, at the hospital. First an ordinary canthoplasty was made to enlarge the palpebral fissure. Then a clamp was applied to the upper lid and an incision of about 3 mm. carried through the whole length of the intermarginal space. It ran from the inner edge of the lid margin, obliquely backward and upward, so as to comprise the cilia and their roots in the outer flap.

Then I incised the skin and muscle of the lid 3 to 4 mm. above the ciliary border and removed a strip of skin (1.5 mm. broad) from the whole upper edge of the incision, and placed it on the sterilized forehead of the patient. A small strip of the orbicularis was excised, and a longitudinal wedge-shaped piece cut out of the tarsus. Four sutures were passed through the ciliary flap, the upper border of the groove in the tarsus, and the upper skin flap. They united the wound, broadened the gap in the intermarginal space, and turned the whole ciliary border of the lid outward. After cleansing the groove in the ciliary margin from the blood with a 1 to 5,000 solution of bichlorid of mercury, the skin flap was taken up from the patient's forehead and inserted into its wedge-shaped trough. When it was well adjusted and the hemorrhage stopped, the wound was dressed with a patch of corrosive sublimate gauze, greased with benzoate of mercury salve and covered with a thin layer of absorbent cotton, held in position by court-plaster strips.

The lady had pain for an hour. The dressing was changed daily. The implanted flap took root in its whole extent. The sutures were removed on the sixth day.

The other eye was operated on in the same way, and with the same result. The patient was completely relieved. She left the hospital on the twelfth day. The inner surfaces of the lids were treated with sulphate of copper for some time. During the next three years several mild relapses of trachomatous inflammation occurred, which were speedily cured with the copper crystal. The restored intermarginal space kept broad and even; no more inverted eyelashes.

The lashes stood in a row, all directed forward and upward. The cornea had cleared up, the patient could read with ease, and I have not heard her complain since. On inquiry a few weeks ago, she answered that her eyes had not given her any trouble. She said that for years before the operation she did not know what comfort was.

This, Mr. President, is the first case I operated on according to this method. Since then my hospital associate, Dr. R. O. Born, and myself have operated on a number of severe cases of entropium and trichiasis in the same way with a good deal of satisfaction.

The operative methods for entropion are legion. For the more marked cases I long ago acquired a preference for the Streatfeild-Snellen operation. The method of Jaksche-Arlt, raising of the ciliary border, is very old, having been practiced by Aëtius (about 500 A. D.) and Paul of Egina[1] (about 675 A.D.) It yields very good primary results, as most entropium operations do, but all the cases I have operated on according to it, showed a gradual shrinkage of the intermarginal space gained by the operation and a return to the previous condition.

The different procedures during the last twenty-two years, to combine a plastic operation with the other methods have interested me greatly. I tried some of them, for instance, that of Burchardt,[2] of Berlin, which consists in implanting into the split intermarginal space a strip of skin taken from the upper lid over the cilia, the ends of the strip remaining attached. In one of my cases an unpleasant ulceration of the cornea resulted. Though the method could not be blamed for this occurrence, I have abandoned it, because I was not satisfied with the appearance of the flap shifted over the outer border of the ciliary edge; the ends of the flap remained raised and the intermarginal space was not so regular and even as when a flap without a pedicle had been inserted. Flaps with a pedicle seem to have first been used and described by Spencer Watson,[3] flaps without pedicles by Waldhauer.[4] He was followed by W. T. Smith, of Chicago, Ill., "A New Operation for Distichiasis or Entropium (*Arch. of Ophthal.*, 1887), v. Hippel, Fuchs, Franke, Raehlmann. (*Deutsh. Med. Woch.*, No. 1, 1891.)

Dr. J. M. Ray, of Louisville, Ky., who published a case of pedunculated flap in the *American Journal of Ophthalmology*, 1892, p. 142, writes me that he has since then tried the transplantation of skin along the lid margin in seven cases, in five of them without a pedicle. He says: "In extreme cases of trichiasis it has been the best method I have ever tried."

An objection has been made to this method, viz., that the fine hairs which grow on the skin of the lid will after the transplantation irritate the cornea. I have not heard patients complain of this condition, but Dr. Born has seen hairs coming through the transplanted flap, evidently eyelashes whose roots were left in the posterior (conjunctival) flap. He therefore excises these roots before he implants the skin flap.

The objection of the hair growing on the transplanted skin flap has determined Lidner[5] to transplant into the incised lid margin a pedunculated flap from the conjunctiva, and Van Millingen[6] and Benson[7] have transplanted unpedunculated flaps of mucous membrane taken from the lips where the mucous membrane joins the skin.

I have not tried flaps of mucous membrane, as the skin flaps thus far have given me satisfaction.[8]

To recapitulate:

In severe cases of entropium and trichiasis, good results can be obtained by an implantation of skin into the intermarginal space of the lid. The steps of the operation are as follows:

1. Ordinary canthoplasty.

[1] Anagnostakis, Contribution à l'histoire, etc., Athens
[2] Charité Annalen, 1882, p. 633, u. Centralblatt, f. pr., Aug., Oct., 1887.
[3] On a new operation for distichiasis with a successful case. Roy, London Ophth. Hosp. Rep., VII, 1873.
[4] Klin. Mon. f. A., 1883, p. 432.
[5] Allg. Wien. Med. Ztg. 1875, No. XXVI.
[6] Ophthalmic Review, 1888.
[7] Blepharo-Cheiloplastic Operations, American Journal Ophth., 1891, p. 149.
[8] I have tried them since. The results were good, but no better than with the skin flaps. Oct. 9, 1895.

2. Incision of the intermarginal space according to Jaksche-Arlt.

3. Curved incision of the skin, 3 to 4 mm. above the ciliary border. Removal of a small strip of muscle along this incision.

4. Grooving of the tarsus according to Streatfeild.

5. Passing sutures through the lower lip of the wound, the upper edge of the tarsus, and the skin of the upper lip.

6. Detaching from the upper lip of the wound, with a straight pair of scissors, a strip of skin, 1.5 mm. broad and as long as the incision in the intermarginal space, and implanting it into the gaping and cleansed incision. Sutures may be used, but are not essential.

7. Tying the skin-tarsus sutures, four or five in number. The threads may be cut short, or stretched and fastened to the skin above the brow by collodion (Panas) or strips of plaster (Born) if the free edge of the lid is not sufficiently everted.

8. Dressing with bichlorid gauze, greased with a salve, or leaving the eye uncovered.

9. Cutting the sutures in from three to five days. Cleansing the eye every day, very gently so as not to disturb the implanted flap, or leaving the dressing undisturbed for a week. The flap in almost every case unites in its whole extent.

This plan of operation is to be simplified or modified, according to the conditions of the case.

CASE OF EPITHELIOMA OF EYELIDS PLASTIC OPERATION, WITH EXHIBITION OF PATIENT.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HERBERT HARLAN, M.D.

BALTIMORE, MD.

After a large number of experiments in the removal of malignant growths affecting the eyelids, or their immediate vicinity, by caustics and various surgical procedures, I have come to the conclusion that the best method is extirpation by the knife and restoration of lid by plastic operation, and as a good example I present the following case:

Basil Shipley, farmer, age 60, from Carroll County, Md., was first seen by me March 1, 1892. At that time he had what was evidently (I speak from a clinical standpoint) an epithelioma of inner side of left eye. It involved the inner margin of both lids; the upper to about one-fifth its extent, and the lower to nearly or quite one-third, and extended over or to the side of the nose. Roughly speaking, it covered a surface the size of a quarter of a dollar.

Two previous operations had been done; one by a prominent surgeon, and one by a skilled oculist. Each operation had been followed by a prompt recurrence, with increase of symptoms.

The lacrymal sac and both canaliculi were involved. The patient was put under chloroform at the Presbyterian Eye, Ear and Throat Hospital, and the whole mass freely dissected away. A very large gaping wound, certainly as large as half a dollar, was left. After the bleeding had been pretty well checked, a balloon shaped flap was dissected from the forehead, twisted down and carefully stitched in position with silk. I regarded it as quite impossible to preserve any tear duct, and made no attempt to do so. The forehead wound was closed by a single row of sutures. Iodoform and gauze was used as dressing and the healing was uneventful. He returned in March of this year and a small growth down on the nose was burned freely by the galvano-cautery. The ectropion which you see, while unsightly, I regarded as harmless, and did not advise further operation.

DISCUSSION ON PAPERS OF DRS. ZIMMERMAN, JOHNSON, HOTZ, KNAPP AND HARLAN.

DR. R. A. REEVE, Toronto—My experience with transplantation of flaps without a pedicle was given at the Canadian Medical Association in 1879, I think. The first one was largely a failure. The technique was not at fault but the patient had psorias and there was hardly enough healthy looking skin on the body to suffice for a flap. As, however, there was ulceration of the cornea from exposure I operated Another case of double cicatricial ectropion proved very successful. I think it is important to maintain the union of the lids for a long period so as to diminish the ultimate shrinkage of the flap. In another case the lids were kept united for several years though sufficiently open to permit useful vision. The patient had nothing but cicatricial tissue from the chin to the nape of the neck. There was complete ectropion of all the lids, with keloid cicatrices. In using a flap without a pedicle in order to permit wearing of an artificial eye it is desirable to implant it as centrally as possible so as to get the minimum contraction. Blepharoplasty by horizontal sliding flaps has given me gratifying results in a number of instances.

DR. H. V. WURDEMANN, Milwaukee—Referring solely to the first paper under consideration, I would say that there will soon come a time when *water* not *ether* will be deemed the only suitable anesthetic for nearly all operations connected with the skin. The injection of cocain in percentages over .2 per cent. (not 2 per cent.) is harmful not only to life itself but to the life of the skin flap. Injection in higher solutions is radically dangerous and should be abandoned in favor of infiltration anesthesia by injection of harmless fluids into the tissues. I will not occupy your time at this moment by any further reference to the matter which I will sufficiently elaborate in the session of Thursday morning.

DR. D. S. REYNOLDS, Louisville—I would like to have the last sentence of the first paper re-read.

DR. M. W. ZIMMERMAN, Philadelphia—Cocain is the only suitable local anesthetic. For the conjunctiva it may be applied to the surface in 2 to 4 per cent. solutions. When the skin is involved, subcutaneous injection becomes necessary. The punctures should be few and the dose not exceed 2.5 grains.

DR. REYNOLDS—I noted that point and wanted it repeated that it might be thoroughly understood. I have seen a single drop of the 4 per cent. solution applied to the conjunctival membrane produce almost instant pallor with cessation of the heart beat. I have noted a dangerous reaction repeatedly and it has been referred to by others.

DR. E. J. BERNSTEIN, Baltimore, exhibited a patient. When first seen she had lost both upper and lower lids and the entire nose by syphilis, and had a beginning ulceration of the cornea due to lagophthalmus.

DR. LUCIEN HOWE, Buffalo—In regard to putting the flap in hot water, it would seem to me to be entirely unnecessary when the transplantation is made without difficulty. Promptitude seems of considerable importance.

DR. J. P. WORRELL, Terre Haute—I have made a number of grafts introducing skin from back of the ear or more frequently mucous membrane from the lip. It is rare that one fails to get union. When there is entropion I did not find it necessary to make the graft. It has seemed to me that if you can make an operation somewhat like Dr. Hotz,' with the incision posterior to the ciliary margin, we shall get such a contraction that we will not have a return of the entropion. I have some cases operated upon some years ago and the results are still satisfactory. I dissect down the skin absolutely to the ciliary margin and remove all of the palpebral part of the muscle; strip the cartilage entirely. From the cicatrization that follows, I have never yet had reversion to the entropic condition. I always do these operations under cocain and have never yet seen a single case of injury from its use. I am inclined to think Dr. Reynolds' case due rather to shock than to cocain.

DR. P. D. KEYSER, Philadelphia, here exhibited a photograph

of a case of transplantation for epithelioma of inner canthus operated upon by him over one year ago successfully and in which there had been no return of the entropion. I find too that grafts take equally as well on cicatricial tissue as any other.

DR. S. D. RISLEY, Philadelphia—I have now quite a group of interesting lid cases in which I have done the grafting operation and I expect good results, even though the cartilage has been usually involved. I take the graft from the forearm as described by Dr. Hotz. I do not think there is any call for any more serious operation.

DR. G. C. SAVAGE, Nashville—It is not often necessary to do extensive or bloody operations for entropion and trichiasis, nor can it often be necessary to transplant skin in an inter-marginal incision. By means of the entropion forceps devised by myself, the blades of the forceps terminating in a stirrup as wide as a diseased lid is usually long, with a shoulder extending up each arm of the stirrup for one-eighth of an inch, to compress the lid margin, a bloodless and effective operation can be done. When the lid has been grasped by passing one blade of the forceps beneath, the other on the outer surface of, the lid is easily inverted and held in position. At least one-eighth inch of the lid margin is included in the fenestrum. The forceps are closed tightly by means of a sliding clamp and the pressure thus exerted makes the operation bloodless. The knife is used first for making the Burow incision the entire length of the tarsal cartilage and through all structures down to the skin and one-eighth of an inch from the free margin. This done, a vertical cut is made from either end of the Burow cut, in the lid margin through all the structures down to the skin, and two similar cuts are made at equal intervals between these. The operation thus completed the forceps are removed, when there follows a good deal of bleeding. The Burow incision widens the lid; my vertical cuts lengthen it, and the two together effect a complete out-turning of the lid margin. One or more times daily the lid should be slightly everted so as to make the wounds gap widely that the deposit of new tissue may be as abundant as possible. The operation is easy and its results effective.

DR. FRANK ALLPORT, Minneapolis—In view of the fact that we have in the operation of Dr. Hotz a procedure almost universally successful for the relief of entropion, it seems hardly necessary to multiply operations. I have used this process for fifteen years and have been almost universally and permanently satisfied with the results. In extreme cases it is usually necessary to combine with it a suitable cantholpasty and when thus applied there are but few cases in which satisfaction will not be achieved. It is an operation requiring exactness and deliberation and where failures are noted it may be because these elements are wanting.

DR. HIRAM WOODS, Baltimore—In an operation for upper lid entropion, performed yesterday by Dr. Savage as he had described his operation, the primary results were excellent. As Dr. Knapp says, many cases show this good primary result but later relapse. This seems specially true of the Arlt operation. Green's operation has been used a great deal within the past few years at the Presbyterian Eye and Ear Hospital with excellent permanent results as observed in cases two or three years old.

DR. HERMAN KNAPP, New York—I want it understood the mode of operation which I have sketched refers in its whole extent only to extreme cases. Cantholpasty is necessary in many cases because by a general shrinkage of the conjunctiva and tarsi, a more or less marked blepharo-phimosis is present. When the tarsus shows extensive cicatricial contraction on the conjunctival side and irregular thickening and curving in of its body with no intermarginal space preserved, the excision of a wedged-shaped slice on the outer part of the tarsus and the restoration of the intermarginal space is indispensable. The strip of skin can be most conveniently taken from the upper border of the elliptical wound when the sutures are inserted but not tied. The strip is then immediately placed into its bed at the edge of the lid. I have seen the inter-marginal space thus gained nicely preserved years afterward.

Exercise for the Weary.—The following is from *Puck:* Dr. Schmerz: "The trouble, Mr. Tyers, is that you don't take enough exercise." Mr. E. Z. Tyers: "Aw, I confess I don't go in vewy heavy on athletics, doctaw. What could you wecommend as a mild exercise to begin on?" Dr. Schmerz: "H'm! You might stretch your arms over your head when you yawn!"

POST-ALCOHOLISM.

BY S. V. CLEVENGER, M.D.

Alienist and Neurologist of the Reese and Alexian Hospitals, Chicago; Late Medical Superintendent of the Illinois Eastern Hospital for the Insane, and Pathologist of the Cook County Insane Asylum; Author of "Comparative Physiology and Psychology," "Spinal Concussion," etc.

CHICAGO.

Ethyl alcohol, spirit of wine, is commercially assumed to be the base of intoxicating drinks, and the purest of these is capable of working great havoc when abused, but the demand for cheap liquor in vast quantities substitutes for portions of the less harmful ethyl or vinic alcohol what is known to chemists as the poisonous amyl alcohol (potato spirit or fusel oil). The aroma or bouquet of liquors is largely due to certain ethers of the more poisonous amyl and butyl alcohols, notably the acetic and valeric; then superadded, all too often, by distiller, rectifier, wholesaler, and especially by the retailer, are sophistications, flavors and perfumes for the purpose of cheapening the resulting compound, which, by the time it reaches the average consumer, contains in addition to the alcohol diluents to increase bulk, articles to give it false strength, fictitious appearance, odor and taste.

In the English Licensing Act of 1872 (35 and 36 Vict. c. 94) there is a schedule of substances called "deleterious ingredients" found to have been used in adulterating intoxicating liquors; they are cocculus Indicus, common salt, copperas, opium, Indian hemp, strychnin, tobacco, darnel seed, logwood, salts of zinc or lead, and alum. Since then, ingenuity and cupidity have extended the list indefinitely among dye materials, both organic and inorganic; and there are also added correctives of acidity, such as litharge, lime, soda, potash; astringents like catechu, oak bark and aloe leaves; earths for decolorizing; sweetening agents, and ethers for flavoring. Most of these articles are unwholesome, to say the least, and tend to debilitate and otherwise set up depraved bodily states.

Chronic alcoholism in its most obvious features is a condition of functional poisoning such as is seen in its production of lethargy, stupidity and acute narcosis. Less noticeably, but gradually, it operates as a tissue poison, affecting parenchymatous elements, particularly epithelial and nerve structure, if not to a greater or lesser degree all the cellular components of the body. A slow degeneration is produced until the blood vessels are involved in thickening and fibroid changes. Oxidation of tissues is checked, since alcohol is consumed in place of the fat, leading to fatty changes which may advance to general steatosis.

Dr. Magnus Huss, of Stockholm, in 1849 first prominently directed the attention of physicians to the subject of alcoholism, a term he was the first to use. He described the paralytic and anesthetic forms of chronic alcoholism, also later referred to by Hammond ("Diseases of the Nervous System," 1881), Ross ("Diseases of the Nervous System, 1885), and other neurologists.

Gowers ("Diseases of the Nervous System," vol. I, 110, *et. seq.*, 1892) under the heading "Multiple Neuritis," gives still more recent details of these distressing consequences of drinking alcoholics.

Magnan (*De L'Alcoolisme des diverses formes du Delire Alcoolique, et de leur traitement*, 1874), Virenque, Hammond and others observed an occasional loss of sensation involving only one lateral half of the body, as in hysteria. The other special senses are generally implicated. Thus the patient loses the sight of

one eye; can not hear with one ear; can taste with only half the tongue; and smells with but one nostril.

Gowers (op. cit. 119), states that alcoholic polyneuritis is most frequently met with and preponderates over all other forms of nerve inflammation. It results chiefly from the stronger forms of alcoholic drinks, and especially from spirit drinking. It is more common among those who take small quantities frequently, than among those who indulge in an occasional spree, probably because the total quantity is greater by the former. It is far more frequent among women than among men; probably three times as frequent. Other causes often coöperate with alcohol in exciting polyneuritis, especially exposure to cold, and, in the poor, insufficient nourishment.

The symptoms consist in motor weakness, sensory disturbance and incoördination. The weakness involves first and chiefly the flexors of the ankle and extensors of the wrist and fingers in the forearm; the result is wrist-drop and foot-drop. Other muscles suffer in severe cases. The sensory symptoms are tinglings, pains, varying in place and degree, tenderness and loss of cutaneous sensibility. The incoördination resembles that present in the slighter forms of locomotor ataxia.

Neuritis is the most common finding in chronic alcoholic autopsies.

Catarrh of the stomach with furred tongue, heavy breath, a feeling of epigastric distress or "sinking," impaired appetite and constipation are ordinarily experienced.

The liver may undergo changes leading to various forms of cirrhosis. Sometimes moderate drinking may reveal a special liability to hepatic cirrhosis, while, on the other hand, hard drinking for thirty years may leave the liver nearly intact.

The stomach and liver disorders of drunkards produce dilated veins of the cheeks and nose, causing suffusion of those parts; acne rosacea. The eyes are watery, the conjunctivæ hyperemic and often tinged with bile.

Formad claims that the kidneys are hypertrophied without other change as a rule, and Guy's Hospital Reports verify this finding. Pitt places this as occurring in 43 per cent. of hard drinkers, and where the typical granular kidney occurs it is indirectly caused by arterial changes. (Osler, "Practice of Medicine," 1001, 1892).

The greatest variability in general manifestations can be found in different patients amounting to idiosyncrasies in particular cases, and in other patients are classifiable into groups of a great or less number.

The organic changes seem to be erratic, but are according to the resistance of organs. As a forerunner of serious alterations in the spinal cord, neuritis is not a simple and harmless disorder.

Magnan has demonstrated an alcoholic paraplegia in which Buzzard found electrical degeneration reaction. Some cases end fatally, though Bramwell ("Diseases of the Spinal Cord," 307, 1884), considers it for the most part functional. Broadbent's description (*Medical Times and Gazette*, Feb. 16, 1884), in which myalgic pains, hyperesthesia and double wrist-drop is included, should be compared with the pathologic changes found by Eichorst, of Zurich (London *Lancet*, May 19, 1888), attending alcoholic neuritis, in cases of incoördination followed by paraplegia and wrist-drop, tenderness of muscles, anesthesia, abolition of reflexes and, finally, vesical and rectal paralysis. The pathologic anatomy consisted in cord hemorrhages in the dorsal gray, thickened, blood vessels, degenerated and atrophied tibial and radial nerves with axis cylinders destroyed; the peripheral extremities were worst diseased; connective tissue proliferations of endo- and perineurium and inflammatory changes in their vicinity. A muscular atrophy was secondary to the neuritis, the nerve sheath inflammation extended to the interstitial muscular tissue. Bramwell notes that myelitis and other forms of organic disease may be caused by alcoholic excess, hence the paralysis may be permanent and incurable.

The enfeeblement of judgment and will may finally end in dementia.

Post-mortem does not show any particularly characteristic changes in the nervous system invariable for all cases of chronic alcoholism, showing that resistance is greater in some than in others. Sometimes hemorrhagic pachymeningitis is observed with thickening and opacity of the pia-arachnoid membranes and wasting of the convolutions, or there may be a chronic encephalo-meningitis with membrane adhesions, but most of these pathologic states are in advanced cases of alcoholism, the more incorrigible sort, as can be readily believed when we note the fact of many chronic drunkards having been reclaimed and restored to the world about as they were before the habit was formed. The older the patient and the longer the addiction, the greater probability would there be of finding organic changes in the brain and its envelopes and blood vessels.

Many chronic alcoholic insane exhibit remarkably close resemblance of symptoms to those commonly found as the result of injury to the brain, in traumatic insanity. These symptoms are: changes of character, lapses of memory, headaches, sleeplessness, irritability, suspiciousness, long apparently lucid intervals, homicidal and suicidal impulses, delusions of persecution. These peculiarities appearing in the alcoholic insane long after being incarcerated in an asylum, during which time no intoxicating liquor has been taken by them, point clearly to organic brain destruction, accomplished from within, but as severe and hopeless as when the brain had been injured by a blow upon the head, with subsequent extension of inflammation to the membranes and cerebral tissues.

It is when the mental degradation which temporarily occurs in alcoholism becomes permanent that chronic alcoholic insanity may be said to exist. During the acute stages there may be hallucinations, illusions and delusions which disappear on recovery from the blood poisoning; the persistence of some of these states betokens permanent damage to the mental apparatus, and the brains of the chronic alcoholic insane invariably exhibit evidences of destructive organic changes.

It is with astonishing frequency that jealousy of the wife or mistress exists to an exaggerated degree in most forms of drunkenness, from simple suspicion to delusions of marital infidelity, which in extreme cases may originate hallucinations of gross amours being carried on in the patient's presence.

It sometimes happens that the alcoholic may have grounds for suspicion in facts, but this does not lessen the delusional origin of his accusations. A frequent outcome of the notorious marital unhappiness thus caused is a brutal wife murder, the body of the victim sometimes being found hacked to pieces or

partly destroyed by fire. The insane fiend may make but a stupid attempt to escape, or none at all, either expressing surprise at, or doubt of the reality of the event, or attempting justification in explanations.

The memory and intelligence suffer gravely, though not always obviously, for it may require considerable familiarity with the former peculiarities of the patient to determine the degree of mental impairment, and comparisons of his past and present are often possible only when he has been under observation for a greater or lesser period; in some cases months may be necessary. He may be able to attend to routine duties, but is inconstant and easily diverted. The reasoning powers are lessened in varying degrees, and many such changes are not determinable off-hand.

Delusions, particularly such as relate to the wife's unfaithfulness, are fixed, but not systematized, for his explanations concerning them are vague and illogical. There is a melancholic persecutory tinge to all his ideas.

Some cases of chronic alcoholism on the verge of chronic alcoholic insanity experience auditory hallucinations of mandatory and accusatory kinds, and these may become so distressing as to lead to suicide, homicide, or insane acts generally. The dangerous character of insanity with auditory hallucinations is fully recognized by alienists.

In asylums for the insane will be found many cases of insanity that have been complicated with alcoholism, particularly a peculiar form called traumatic insanity, the result of head injuries, after the receipt of which there is a remarkable tendency to drink to excess, and the alcoholism may be combined with the traumatic insanity in every conceivable degree, sometimes outrunning the original psychosis in its influence for evil. Epileptics are sometimes incorrigible drunkards, and epilepsy may appear for the first time when an alcoholic has abstained from liquor for some unusual length of time. In such cases there may have existed petit mal, unnoticed previously, or even convulsions may have occurred at night, during sleep, and after stopping the use of liquor the fits have appeared during the day, through the alterations in habits. Any other form of insanity may have, to some degree, the impress of alcoholism to modify it, and where this complication is extreme, as it is frequently in the head injury cases mentioned (sunstroke victims fall into this category), there are characteristics in common with those of chronic alcoholic insanity that are well recognized by asylum physicians and that often cause considerable annoyance.

Soon after the commitment of a chronic alcoholic insane case to the asylum or hospital, he appears to improve remarkably, if he escape the consequences of his last debauch and does not die of pneumonia or exhaustion; locked up at first in a ward, he is sooner or later trusted about the grounds and can be made very useful as a workman of some sort. He may refrain from asking for a discharge for a long while for the purpose of convincing the superintendent of his recovery, but unless the patient conceal his delusions, as many insane do, he is liable, with a little questioning or in his letters to friends or relatives, to reveal the permanency of his delusions of persecution. The writings of some of these apparently sane alcoholics contain the foulest abuse of mother, wife or children, without the least warrant for it in their former treatment of the patient.

Sometimes a weak-minded relative may be found espousing the cause of the "unjustly detained" alcoholic, or well-meaning but misguided friends may satisfy themselves of the "recovery," and even resort to habeas corpus proceedings to secure the patient's discharge.

Under the watch and restraint of hospital sojourn and their gradual admission to parole, with occasional breaks thereof, many of these patients assume, to all appearances, their original mental condition. To the superficial observer they are perfectly sane; many work cheerfully in the shops and talk quite intelligently about the possibility of relapses if allowed to go. But a large percentage are importunate, and these are the least to be trusted, for their anxiety to flit is born of their inability to gauge their feeble will power to resist temptation. If they are discharged, back they come, not infrequently with newspaper and other criticism of the hospital authorities for having liberated such a dangerous character. These same critics are just as liable to write up sensational comments on the injustice of keeping perfectly sane persons at the behest of relatives who, the critics affirm, have some pecuniary motive in the patient's being deprived of liberty. Nor is the trouble taken to inquire whether the county is charged with the case as a pauper or not.

When habeas corpus proceedings are begun, the natural inference is that there must be some malign reason for the detention. Probably it is just as well in the long run that the public should be suspicious, but the conscientious hospital physicians are put to unnecessary trouble in explaining matters of pathology and general medical experience to laymen who are much more familiar with business affairs.

The hospital physicians will congratulate themselves that cases of this kind are improving, and discuss the advisability of trusting them on parole, preliminary to letting them go home on trial, but the records of the cases suggest caution, such as domestic horrors, including attempted wife murder, brutality to children, improvidence to a criminal degree, the wife usually faring the worst, though when he is not drinking she claims her husband to be the "best and kindest of men."

Notwithstanding all this, such near relatives often beset those in charge of the hospitals to liberate their husbands, sons or fathers; poor ignorant creatures, because they can only see the hopeful side of matters for themselves, and can not appreciate the vast fund of information possessed by the doctors as to the frequently disastrous consequences of too early discharges, or, sometimes, any discharge at all.

The alcoholic insane have been apparently sane while at the asylum, and even after ten years' trial when they were allowed to return home they would resume all their bad habits, such as furniture smashing, chasing the family into the streets with axes or knives, and after being returned to the asylum in a maniacal state they would resume all their apparent sanity and sweetness of disposition, which arouse the suspicion of the visitor that some unworthy motive on the part of somebody withholds so useful a person from society at large.

Among the sadly comic instances of this kind appear liberations after carefully weighing probabilities and enduring the threats, entreaties and promises of the family and the patient, against the better judgment and misgivings of the physicians; and when something does occur from the risk, as too often hap-

pens, forthwith not only the public but the relatives censure the weakness of the doctors for having listened to them at all.

A washerwoman, who had about as much experience with the inner life of a large city as some physicians acquire, used to dub the defects produced by alcoholism as "street angels and home devils." Much danger to the community exists in the seeming sanity of such cases. There is no provision for their incarceration on the ground of their great liability to be homicidal, and when they do commit a murder it is a difficult matter for the public to comprehend the insanity during the quiet stage induced by imprisonment and liquor deprivation.

Alcoholic dementia is simply a secondary or terminal dementia of profound type, that has usually supervened upon alcoholism, the intermediate stage of chronic insanity being often short, or having escaped notice altogether, as such; being merged from the general alcoholism. It is as permanent and incurable as any other secondary dementia. The organic brain and blood vessel changes in this, and other chronic alcoholic insane states often shorten the lives of patients; many succumb from pneumonia which proves so fatal to drunkards generally.

Post-alcoholic conditions are such as become evident during abstinence after the protracted use of liquor.

If the shock of abstinence is rallied from, we can then determine how much is left of the patient. Destructive changes in the brain may be, to an extent, masked by drinking; that is, the behavior of the patient may be erroneously ascribed to the drinking when it in larger part may be due to brain alterations produced by over-indulgence.

The extreme ground is taken that by whatsoever means recovery from habitual drunkenness is made, the health is never regained. Dr. Clum (*Quarterly Journal of Inebriety*, October, 1891, 382), observes that those who have been addicted to the excessive use of alcoholic beverages for a number of years may be restored to a state of sobriety but they are generally left with an entail of chronic disease which eventually ends their career. They die temperance men, but die as a result of disease contracted by the excessive use of liquor. The habit is abandoned and nature and remedies are given a chance to do their part toward reinstating the individual, but the vital organs have been injured beyond reparation.

This gloomy outlook for the "reformed" inebriate concerns a large percentage of cases, but is far from being universal. Drunkenness is not the only consideration; the health previous to and during the addiction should be regarded, aside from, as well as with, the drinking habit and its extent; the age, associations and conditions, such as exposure and immoral practices, as incidental or consequential matters, need consideration in ascertaining how far a breakdown is ascribable to drink or its stoppage.

Heart weakness that had previously been compensated to some extent by stimulants, whether created by their use or not, often becomes apparent in post-alcoholic life. Syphilis is known to have become modified and somewhat checked through the alcoholic poison acting upon the syphilitic poison, and when this antagonism ceases the syphilis has become more virulent. Livers, kidneys, nerves and brains that have been structurally degraded can not be restored by mere change of habit; indeed, paralytic states may become evident immediately after liquor withdrawal through the shock of readjustment to new vascular workings. For example, when an alcoholic neuritis with membrane thickening and beginning spinal cord myelitis has been inaugurated through alcoholism, the sudden change in the circulation caused by abstinence will inevitably render the physical consequences of such inflammatory and neoplastic states more apparent. Pressure symptoms, debility, and marked sensory and motor impairment are liable to occur, from monoplegias to complete paraplegia.

Tremens begins during the abstinence of drinkers, and from circulation changes in the brain, temporary sobriety causes a dazed, bewildered mental state in the hard drinker. Even were the craving destroyed, and were the will power to resist drinking to be imparted, by any means, too often the inebriate then finds himself so completely out of his environment, so changed are inner to outer relations as to what constituted his previous existence that he rushes back to his former habits about as a fish would take to water, and for analogous reasons.

Hard drinkers are the first to succumb to epidemics, such as cholera and yellow fever, and abstinence merely uncovers the debased organic weaknesses that these epidemics coöperated with destructively.

After prolonged use of liquor, abstinence sometimes is followed by acute melancholia in which the delusions of that psychosis are commingled with some that are peculiar to alcoholic insanity. This depressed state seems to be owing to exhaustion of the system habituated to alcoholic sustenance, and not yet readjusted to the assimilation of proper food.

A demented condition more or less profound may set in from the same causes. A well-known stock-yards millionaire of Chicago had, up to his sixtieth year, guzzled fusel oil in all its disguises as ethyl alcohol compounds, and a sharper shrewder person was hard to find; but he abandoned his drinking suddenly, utterly and completely, and during the succeeding three or four years gradually became incapable of attending to business, presenting the apathy, memory loss and other characteristics of what was known as "primary mental deterioration" but which Voisin claims to be "atheromatous insanity," the blood vessel destruction found post-mortem justifying the designation. While this mental malady is often independent of alcoholic habits, its appearance as apparently connected with the stoppage of drinking is worth noting. In those who indulge many years and then quit drinking, the alteration in behavior is quite observable; they are certainly quieter, calmer, and while doubtless far better off than when stimulating, the general tone is below what it used to be, or what it would have been had they not drank at all; meddling with fire must be at the expense of some scars. While atheromatous insanity may occur in the temperate, a condition like it, if not identical with it, could readily be conceived as consequent upon abstinence after long addiction, or the pathologic condition mentioned itself could be directly induced by alcohol, and persist, whether alcohol is or is not taken after the condition is instituted. The tendency to steatosis in the intemperate can be recalled in this connection and doubtless many cases of so-called dementia from abuse of alcohol may be found to be of Voisin's type of atheromatous insanity.

The hyperemic state of chronic alcoholism necessarily alters the cerebral circulation in various ways

in many, but not in all cases, causing endarteritis, leucocytic exudation, neoplastic organization and capillary extravasation into the cerebral tissues comparable to the rosacea observable in some drunkards' cheeks and noses. In my autopsies of the alcoholic insane at the county asylum, I invariably noticed a rusty discoloration of the dura mater along the course of the superior longitudinal sinus, and other evidences of old inflammatory conditions such as adhesions of the membranes and cerebral tissue of the convexity and basilar regions. The vascular and meningeal alterations varied in degree according to the patient's age. Where frailty of blood vessel organization existed congenitally there was greater liability to pathologic change in such cases.

The finer mental coördinations in any one are maintained by effort; being the latest faculties acquired, and their tenure being so dependent upon full brain integrity, it is plain that the moral nature has been superimposed upon the less easily destroyed brute nature, through finer and weaker histologic arrangements acquired and inherited, demanding for their exercise the clearest kind of brain activity. Vitiated blood quickly blots out these better but feebler functions for the time being, just as exhaustion is felt first in our weakest joints. So the moral nature, which is merely a higher intelligence, may depart when the seat of intellect is weakened by any cause such as senility, drinking, insanity, arrest of development, traumatism and some diseases.

When certain pathologic adjustments, involving imperfect compensations, occur, such as thickened arterial walls which resist the increased flow of blood, then a new plane of mental operation is established, which, if disturbed by change of habits, as by withdrawal of the customary greater heart impulse, it is but partially and inadequately recompensated by the pure blood. Practically, the adjacent cerebral tissue must suffer from anemia to a greater or lesser extent, and where previously the blood was driven through disarranged avenues, it now makes its way feebly and in places not at all. Nor is this all; the sclerosed and otherwise changed tissue becomes a more prominent hindrance to function when the artificial nutrition and circulation is cut off. So the poor fool of a drunkard is too often thus "damned if he does, and damned if he don't" continue.

Summarizing post-alcoholic bodily and mental states there may be found many organic destructive changes in the blood vessels, liver, nerves and brain, which were not so evident during the addiction, owing to the somewhat compensatory effect of the alcohol, and hence the masking of diseases.

The simple privation may kill through the weak heart losing its wonted stimulant, but such cases are not very common; debility is the most frequent consequence of "reform," but this is often a return to what preceded and may have led to the over-indulgence. Cerebral blood vessels subjected to engorgement are liable to rupture at any time where weak points exist, and fatty degeneration of vessel walls, induced by the liquor, may culminate in apoplexy, whether drinking is continued or not.

A single severe attack of delirium tremens may make profound changes for the worse in the future workings of the brain, and the typhoid stage of some cases of delirium tremens show the ravages of the poison often in life-long sequelæ.

Chronic alcoholic insanity may make its first gross appearance after abstinence enforced in jail or otherwise.

Necessarily, when liquor is withdrawn, a change for the better is ordinarily the rule, but such withdrawal in some cases may operate as a shock, and in all cases a readjustment of the entire physiologic make-up must occur. It is conceivable that epilepsy or insanity may find in such shock a potent exciting cause and the whisky soaking is ample as a predisposing influence, when it can alter the brain structure, in time, as thoroughly as a contusion or a concussion.

But what the inebriate has drank, how long he has been drinking, and his power of resistance, associated diseases, hereditary and other tendencies, are to be taken into account; and with these it is surprising how large a number of heavy drinkers escape any obvious trouble due to such excesses. A well-known druggist of Chicago was a sot until his fortieth year, stopped drinking and died at 70 years, having built up a large business; while others who had not taken half his risks with liquor succumbed during or after ceasing their bad habits.

Post-alcoholic conditions such as insanity, paralyses, weak heart, etc., that occur in a minority of cases after alcoholic disuse, only the most thoughtless or perverted could use as arguments against the stopping of drink; as the liquor in such cases produced the trouble which merely culminated after the habits were changed; such climax, being inevitable in any case, and impending, might have been reached earlier, or in a graver form, had the inebriety continued.

In a few words, drunkenness is a constant menace to the mental and bodily health, and it is far safer to escape from its ravages, scarred and maimed, than to go on sooner or later to certain destruction. Though the vast majority may be rescued entire, or nearly so from intemperance, no one can tell what the chemic devil has left of him until months or years of sobriety have passed.

THE ESSENTIAL OF INSANITY.

BY J. SANDERSON CHRISTISON, M.D.

FORMERLY OF THE NEW YORK CITY ASYLUMS FOR THE INSANE, BLACKWELL'S ISLAND AND WARD'S ISLAND.

CHICAGO.

If by insanity we simply mean more or less deviation from the free normal action of the mind, without regard to cause, then, indeed, no mortal is constantly free from it. For as mental activity, in degree and range, is a measure of physical tone and proportion, especially of the brain, it is quite evident the accidents of existence preclude a constant normal. But the term insanity, to the popular mind implies the state of personal irresponsibility and the question in regard to a particular act, is the proof of the existence of this state. The law, with reference to a specific act, simply demands, Was he sane or was he not? implying by the question either a fracture of mental integrity or a degree of derangement beyond which responsibility justly ceases.

It is quite clear that from a practical standpoint, we can not hold to the position that all men are insane or that all abnormal states of the mind are degrees of insanity, though leading to it. Just as we do not recognize tuberculosis until the bacillus is in the field, so we may have an essential characteristic of insanity. That essential of insanity is a delusion

uninfluenced by evidence sufficient to refute and due to disease of the brain. This definition includes a much wider range than asylum wards and embraces a class to whom we might hesitate to impute the charge, while it drops others into the still wider circle of cranks and crippled creatures. But to maintain that a man is not really a lunatic unless he holds a delusion will depend upon what we regard a delusion to be. An insane delusion is a false concept—an idea which is the product of defective data and defective reasoning and held in spite of the presentation of a corrected data and corrected reasoning. This distinguishes it from a common delusion—an error of belief remediable by suitably put evidence.

A common or simple delusion is due more to educational errors, but which by necessity—from the aberrant nature of errors—they more or less induce material conditions off the normal line, and thus, in addition to the direct evil of their falsity, they indirectly conduce to undermine the physical tone requisite for perfectly free mental action. But the lesser degree of defect may be in the course of the evolution, of the greater, yet so common is it that few of us could plead freedom from a finding of some sort.

Insanity has no direct relationship to the size or shape of the brain, but only to its lack of tone or integrity—a molecular disintegration—which in its last analysis is the registration of conduct and which ought to be in line with a motive consistent with common sense—the normal product of common experience. A simple error of belief, a mere notion or faint suspicion, may so mislead as to react injuriously before correction is made, or they may even become the substructure of a slowly constructed system of beliefs having a degree of plausibility which may earn for its advocate a respectful attention. As one error held begets another, and as all errors, when actuating, mislead in conduct which determines the tone of the organs of mind, it is evident the result of the one becomes a cause of the other, and thus we may have insidiously developed a fixed delusion or systematized set as in a Swedenborg or a Schweinfurth. If the tone of the brain is fully at par, the action of the mind will be accurate as far as attention is directed both as regards the nature, number and order of perceptions or sensations and the process of reasoning on their relationship and thus correct conception result. It will be the truth, if not the whole truth. A greater brain and one more perfectly proportioned would supply the energy, other things being equal, for more extended attention, and thereby a more comprehensive result.

Systematic observations in prison and asylum practice in New York city abundantly satisfied me that neither mere shape nor size of brain had anything to do with insanity or criminality. But it was evident that the causative conditions of shape and size did have to do with capacities or talents which, did they not meet a fitting environment, would at least negatively contribute to loss of brain tone from the simple lack of proportional exercise, and in this way lead to demoralization, which, of course, always induces disease or a receptivity for it in some degree.

The delusions of illusion and hallucination differ from the purely relational—those wholly due to ideational incompetence—only in being less centric in origin. They are more fleeting and susceptible of correction, but they may be just as strongly actuating while present. Every delusion is an immediate product of defective ideation—the intellectual act involving perception, reason and will and expressing a failure of the brain. When illusion and hallucination are absent, the delusion is purely the product of ideational incoherence—an incompetent relationship of the ideas involved. The faculties are subjective and the emotions are irregular and either excessive or greatly reduced, with egotism, suspicion, jealousy or fear made manifest. These states are always symptomatic of cerebral instability and although so common, they can not exist in the perfect individual who necessarily has a clear conscience and correct appreciation of facts within the range of his vision, which is serene at all times. Their combination and form of associated delusion are formed by the elements in the history of the individual. Great depression or great excitement can not exist without delusion, for the mental condition is such that ideas can not be correctly associated and thus, if the stage of confusion is transcended, some insane delusions arise, although they may only be fleeting. If correct facts in correct form or relationship were present in consciousness, such morbid manifestations could not exist any more than fire can without fuel. Egotism, jealousy, suspicion, hatred, envy, anger and fear are all expressions of morbid condition or weakness, though we regard them in moderation as perfectly natural. They are due to imperfect comprehension of facts before the mind and which is a measure of lost energy. In delusion, the faculty of attention is so weakened that the presentation of the truth is not appreciated.

The emotions are the product of subconscious ideational activity, made conscious in the form of feeling instead of image, and their precise disposition will accord with the data of the memory—the purely conservative faculty—but only those data which are in affinity with the exciting agent. Emotion is inversely proportionate to intellectual range and is the expression of the inability of the intellect to take distinct and immediate cognizance of all the ideas in the memory aroused by the excitant, just as it fails to distinctly perceive all sensory impressions from the outside. This is a normal condition, but is very often out of proportion long before derangement to the degree of insanity is reached.

By the free normal action of the mind, I do not mean an everyday type of health, but a much higher. To be on a level with a certain class or race of humanity, may be a long way below the highest possibilities of individual capacity. Indicative of this fact is the common lack of quickness, preciseness and completeness of mental action within the range of individual knowledge and capacity. Our criterion should be formed from ultimate motives for existence. Insanity is not a relative term, but a positive. It is an extreme aberration from the normal, and the normal is only normal in so far as it is in correct line with evolution or final purpose in nature and not simply in harmony with immediate social environment.

An insane delusion has three components, error of fact, incapacity for correction, error of inference and illogical tenacity. The responsible faculty for this is the attention which is so affected by a weakened will that it can not be held long enough to complete perception and conception, and ideational

displacement results. But as the will is the dominant power of the mind and owes its strength to support from the other faculties, it is evident that its weakness is due to a general loss of energy, which subserves the mind as a whole, and as a consequence thus becomes an added cause for farther evil.

The evidence of a delusion is not always readily recognized, even by asylum physicians. Some subjects secrete their delusions; some have their delusions instantly dissipated by the presence of a physician, officer or stranger; some only have momentary delusions or perhaps frequently changed; some change with prominent events; some have delusions so buried that they can only be elicited by particular conditions and requiring the analytical skill of an expert.

But the point of present issue is that where there is no delusion, there is no insanity, for the mind that is competent to comprehend facts and their bearings within the scope of its education and the limits of ordinary surroundings is a mind capable of correction on any error; and, conversely, a mind that is not thus competent must of necessity beget delusion of one form or another which it is as incompetent to discharge, no matter what the evidence combating.

FURTHER REPORT OF THE SERUMTHERAPY IN TUBERCULOSIS.

BY PAUL PAQUIN, M.D.

PHYSICIAN-IN-CHIEF ST. LOUIS SANITARIUM FOR THROAT AND LUNG DISEASES.

ST. LOUIS, MO.

Up to this date all of the reports which I have had the honor to make to the medical profession, bearing on the use of the horse-blood serum in the treatment of tuberculosis, cover a number of cases in which the improvement had been more or less marked. Our experiments up to the last report had not gone far enough to justify the statement that we had, in fact, cases of tuberculosis which had been cured. The present writing is chiefly for the purpose of reporting results of a more positive nature and, at the same time, to say a few words on the complications that may arise during serum injections; the conditions which militate against its use; also the extent, so far as I am able to present from past experience, of the expectations that may be based on the new treatment. I will begin with the latter propositions.

In the first place, one should always bear in mind that tuberculosis varies a great deal with individuals and with respect to the organs affected. Pulmonary tuberculosis itself presents a wide range of pathologic conditions that must be judged and interpreted according to the extent and nature of each, locally and generally on the system. Consequently, no two cases of pulmonary consumption can, with safety, and hope of success, be treated alike by any one remedy, irrespective of the general and local constitutional or organ disturbances. One would suppose that a specific treatment should apply to all forms of it. One would think that if creasote is good in one case it ought to be in another. If inhalation of essential oils does good in one case it should benefit in another. If serum injections produce good results in a given case, they should have similar effects, irrespective of any other treatment, in any case, affecting any organ.

But such is not the case. It is unfortunate that so many seem to think that with a given specific remedy for any given disease, all that is necessary is to apply that remedy mechanically, without respect to anything else, physiologic or pathologic. Chronic tuberculosis of the lungs may consist of scattered tubercles throughout one or both lungs (and hundreds of them), each surrounded by a special envelope, impenetrable by the circulation or by medicines. These tubercles may be surrounded by acute inflammatory processes or free from them. Some may be in an advanced stage and others just forming. In such cases, the opening of the tubercles happens gradually and successively; that is, some of them break to-day and others to-morrow or later on. Consequently, a more or less constant process of eruption goes on for months or years. Sometimes eventually, cavities are formed, during which certain principles of the morbid matter are partly absorbed, but mostly expelled by expectoration. It is evident that no form of treatment can arrest these slow cases promptly. The good results of serumtherapy in these have been slow in proportion to the nature of the affection, but have occurred, and we have under observation patients of this class who are unquestionably steadily improving, if we are to judge by the disappearance of the chief symptoms, such as night sweats, fever, loss of appetite, emaciation. Indeed, to arrest the progress of the disease in such cases is itself progress toward a cure. In another form of tuberculosis, one may meet with contracted lungs, sometimes with alterations of a more or less fibrous character, lungs encased usually in a narrow or otherwise defective chest. These cases are also very slow (they do not always end with cavities), and serumtherapy as well as other agents must naturally fail to bring quick improvement.

It is only slowly that one can reach such pathologic lesions, whatever agent is used.

On the other hand, we find chronic cases of tuberculous processes existing here and there, or localized in one apex or both apices, which are of a subacute character, and around which there exists more or less infiltration which, under physical examination, simulate to some degree the fibrous consolidations which I have mentioned before. This form of tuberculosis yields more readily to the serumtherapy than those above mentioned.

Again, there are cases of chronic tuberculosis of the lungs in which the tuberculous alterations consist first in localized inflammatory processes, unknown sometimes to the individual until a hemorrhage takes place and which sometimes end in cavities more or less extensive, and more or less serious according to their location, etc. One occasionally meets with such cases without detecting any other alterations in the lungs.

It must be apparent to any physician that the various conditions just mentioned (which do not by any means cover all the types of pulmonary phthisis) are not to be treated by any stereotyped formula and serotherapy, acting as a specific agent, should not be depended upon exclusively, irrespective of other conditions in the diseased organization. In other words, every case should be managed scientifically, using the serum only for the purpose it is intended, namely, to give to the organism the physiologic elements which it lacks to fight the tuberculous process from within.

Most of the chronic forms are mixed infections,

and therefore demand additional treatment, and were they not such, accessory therapy is certainly in order to meet any special condition, and physicians should not neglect them under any circumstances. In our first reports we made it a point to explain that all our experimental cases had been treated exclusively with serum. Exclusive serumtherapy was necessary in those experiments, because we had to demonstrate as far as possible what the serum alone could do, but we are not justified in this early stage of the serumtherapy to lay aside everything else that may be useful to meet any special phase of disorders in a tuberculous individual. In fact, it is unscientific to treat diseases by any stereotyped method. Each case of any given disease should be considered on its merits, if I may so speak, and after proper consideration one should use the most potent or most specific therapy and add to it, if necessary, according to what the symptoms may suggest.

We have beside to deal with acute forms of tuberculosis which, under ordinary treatment, may be classed as hopeless from the very beginning. It may be said that they always end in death. Medicine of the past shows no authentic records of cures in any such case. It is in these, however, that serumtherapy has proved its efficacy most strikingly. If is only within the last three months that we have had opportunities of testing the serum in this form of the disease and, already, I am in position to point to three patients in which the diagnosis made microscopically and physically was unmistakable, who have arisen from a bed of sickness where everything pointed to death within a short time. These cases, were not in my own practice, and, consequently, I am not at liberty at present to give their history. But I will mention that I have seen two of them, and that I have verified the microscopic analyses previously made in them and know that both of them had acute tuberculosis of the lungs in the worst form and both are now entirely free from bacilli, and are up and about and gaining strength, and one has absolutely no physical or microscopic sign of the disease left. This one, a young lady of about 18 years, had been at the time of the beginning of the treatment, prostrated in bed some four or five weeks; had had a temperature of 104 to 105 during three weeks preceding the injections; had had cerebral symptoms to the degree of absolute loss of mind during all that time; had both lungs so seriously involved that breathing was painfully short and laborious; emaciation and weakness were so pronounced that she was absolutely unable to raise her head, and could barely lift her hand. She was treated about three weeks with the serum and the temperature went down steadily after about four days from 105 to 98.5; the lungs gradually but steadily cleared up; hemoptysis and expectoration ceased; the bacilli entirely disappeared; the clouds were lifted from the mind; the appetite returned and the young lady is out of bed, up and around, and putting on flesh rapidly. This is the most striking result we have obtained by the *exclusive* use of the serum. The physician in charge, who will report the case himself shortly, excluded all other medicines because the case, after consultation with other physicians, was considered hopeless by any of the old modes of therapy. The serum was used as the last resort without any hope whatever.

The other patient of the two just mentioned, whom I have seen, was an old gentleman who had also been prostrated in bed several weeks with acute tuberculosis diagnosed as such by some of the most eminent physicians of St. Louis, who, after consultation, considered his case hopeless. This patient began the serumtherapy under another physician, and within six weeks, I believe, was also raised from his bed and is out and about. Not a bacillus is to be found in his expectoration to-day; one lung is entirely cleared, but in the other there remain some adhesions, which will probably remain, as they seem to be of a fibrous character. Certainly the tuberculous phenomena seem to have been arrested; the germs are there no more, and the ravages which they have produced are being healed.[1] We have also two cases of chronic tuberculosis without any more symptoms of the disease except the evidence of the cicatrix. They were both bedridden and are now both working hard every day.

Now as to the complications that may arise in acute tuberculosis by injections of serum, I will mention first the general disturbances. Constant injections of serum may result in rheumatic symptoms, particularly in those with rheumatic diathesis. Swelling and pain of the articulations and pain in the muscles may arise. By suspending injections and using lithia the symptoms disappear. Occasionally urticaria results, scattered over the skin around the ankles, body, neck, etc. A curious accident that occurs sometimes is a sudden disturbance of the circulation, evidenced by a very pronounced flushing of the face, a condition which usually promptly disappears. This occurs during injections or just after. The face becomes gorged with blood, the patient feels dizzy and will fall if not assisted to lie down. These symptoms appear and disappear within two to five minutes, in my experience. Two or three times, after such occurrences, there resulted a chill and occasionally a headache, and pain appeared in the spinal column. In no instance, except one, did the heart suffer during the trouble. In this case it became very feeble and hypodermic injections of stimulants (whisky and nitro-glycerin) were deemed useful to assist recuperation. This disturbance of the circulation occurred in my practice and my experiments eight times in a total of some eight thousand injections. Whether it can be fatal or not, I am unable to say, but it is so rare that it is not to be considered in any worse light than any untoward symptom that may arise from the administering of any other medicine of a potent character which we use daily in medical practice, such as cocain, sulfonal and numerous other medicinal agents which the readers will readily recall to memory.

With respect to the kidney's action, I have to mention that in two cases in which there existed already a trace of albumin, albuminuria increased without, however, producing any of the serious symptoms that we note in Bright's disease. In neither of these cases were there any casts to be found. In another case, which was not directly under my control, and which unfortunately had not been analyzed before beginning the injections, albumin was found in great quantities after the patient had been treated two or three weeks. I am unable to say whether this came from the injections or not, inasmuch as it occurs frequently enough, that albuminuria exists with tuberculosis. On this point, I will mention that,

[1] This old gentleman patient now weighs nearly 200 pounds. Weight at beginning of treatment less than 160.

being in the habit of analyzing the urine of every case of tuberculosis before treatment, I have found the last four months, six cases of albuminuria in thirty-two cases of pulmonary consumption.

From the foregoing, I judge that it is not wise to use the serum in cases where there is kidney inactivity. Locally, the serum injections may produce erythema and local irritations more or less pronounced. These are sometimes sufficient to produce an elevation of temperature and they should be treated according to their nature. It would seem from the foregoing, that serum injections in tuberculosis, or in any other disease for that matter, should not be considered entirely free from possible complications, and that every case treated should first be thoroughly analyzed and treated on its merits. With respect to the results of the serum in the hands of others, I am pleased to say that I am getting daily excellent reports which will serve materially in deciphering the conditions in which the serum will or will not act beneficially or will be too slow for practical purposes. I have now in my hands, reports covering the use of the serum in various parts of the country in many different tuberculous conditions from which I shall glean material for an article explaining various kinds of results. All these, I can now state conscientiously, give evidence that the principle of serotherapy in consumption is correctly interpreted in our experiments and our judgment as made known by our reports. In New Orleans, California, Missouri, Illinois, etc., we have had excellent results, and, naturally a percentage of failures.

Before closing, I wish to state that in local tuberculosis of the skin, glands, and surgical cases with fistulæ, with and without operations, the results have been positively beneficial. Specific reports will be given by the physicians who have undertaken such cases in this city and elsewhere. Cures have practically occurred.

In conclusion, I beg to warn the over-anxious against the idea that a few weeks of treatment of any case of chronic tuberculosis will effect a cure. The cases we can now report as free from tuberculous symptoms and which were in the first and second stages of the disease have been treated not less than four to six months steadily. Four to ten months of steady treatment should be contemplated from the onset. No miraculous or magic effects should be expected by any doctor or patient. Considering that tuberculosis is fatal in 99 per cent. of cases, and generally very slow, this conclusion is entirely reasonable.

SOCIETY PROCEEDINGS.

American Public Health Association.

Proceedings of the Twenty-Third Annual Meeting held in Denver, Colo., Oct. 1–4, 1895.

SECOND DAY—WEDNESDAY, OCTOBER 2.

(*Continued from p. 632.*)

The Association reconvened at 10 o'clock, A.M. in the Brown Palace Hotel, with PRESIDENT BAILEY presiding.

There was a larger attendance than during the preceding day's sessions, as a number of delegates had arrived since last adjournment.

CHAIRMAN SEWALL, of the Local Committee of Arrangements made announcements regarding various trips, excursion rates to same, social functions, etc.

The Executive Committee, through Secretary Watson, recommended that the names of the applicants in his hands be elected to membership. Upon motion duly seconded the Secretary cast the ballot of the Association for them.

The Committee also recommended the adoption of the resolutions offered at Tuesday morning's session by Dr. Mitchell, regarding the transmission through the mails of bacteriologic specimens when properly prepared so that no danger could possibly accrue to those handling the packages, etc. Dr. Mitchell then exhibited two samples of tubes and cases that he had devised for this purpose which he had proved was perfectly safe to send specimens in, and deemed to be absolutely safe to admit through the mails.

The resolutions were then unanimously adopted. The committee also recommended that the committee on the centennial celebration of the discovery of vaccination be restored by the Association. Adopted.

The committee recommended the creation of a new committee, namely, a Committee on Forestry and its Relation to Public Health. Adopted.

After some additional routine business had been disposed of, Treasurer Henry D. Holton, of Brattleboro, Vt., submitted his annual report which showed receipts from September, 1894, to date from all sources to be $3,627, and disbursements as per fourteen vouchers; that there is remaining in the treasury $493.98, *Index* fund unexpended. Upon motion, the report was received and referred to an auditing committee consisting of Mr. Crosby Gray, Dr. H. B. Horlbeck, and Dr. J. N. McCormack.

DR. C. N. HEWITT introduced the following resolution on the death of M. Louis Pasteur, which was duly seconded:

Resolved, That this Association has heard with profound sorrow of the death of Louis Pasteur. That it offers to his family, to his assistants at the Institute Pasteur, to his country, to the members of the profession, sincere condolence in the loss of a master of science. His work for the alleviation of human suffering is as he would have chosen—his everlasting monument. His example as an humble and attentive servant and student of nature, is the precious legacy he has left us.

On motion of Dr. McCormack, a silent rising vote was taken. In addition to the foregoing, upon motion of Dr. Formento, a cablegram was sent to Dr. Roux, collaborateur to Pasteur, containing these words: "The American Public Health Association mourns the loss of Pasteur."

The roll of the Advisory Council was called, and the following members were present:

Colorado—Dr. Henry Sewall, Denver.
Connecticut—Dr. R. S. Goodwin, Thomaston.
Delaware—W. C. R. Calquohoven, Wilmington.
Illinois—Dr. Liston H. Montgomery, Chicago.
Indiana—Dr. L. S. Whitesides, Franklin.
Iowa—Dr. A. W. Cantwell, Davenport.
Kansas, Dr. Daniel C. Jones.
Kentucky—Dr. J. N. McCormack, Bowling Green.
Louisiana—Dr. Felix Formento, New Orleans.
Maine—Dr. A. G. Young, Augusta.
Maryland—Dr. James F. McShane, Baltimore.
Massachusetts—Dr. S. H. Durgin, Boston.
Michigan—Dr. Cressy L. Wilbur, Lansing.
Minnesota—Dr. C. N. Hewitt, Minneapolis.
New Hampshire—Dr. Granite P. Conn, Concord.
New Jersey—Dr. Henry Mitchell, Asbury Park.
New Mexico—Dr. S. D. Swope, Deming.
New York—Dr. A. W. Suiter, Herkimer.
North Carolina—Dr. R. H. Lewis, Raleigh.
North Dakota—Dr. John Montgomery.
Ohio—Dr. Charles O. Probst, Columbus.
Pennsylvania—Crosby Gray, Pittsburg.
Rhode Island—Dr. Gardner T. Swartz, Providence.
South Carolina—Dr. H. B. Horlbeck, Charleston.
Tennessee—Dr. W. C. Bailey, Knoxville.
Vermont—Dr. H. D. Holton, Brattleboro.
Wisconsin—Dr. U. O. B. Wingate, Milwaukee.
District of Columbia—Dr. Ralph Walsh, Washington.
U. S. Army—Deputy Surgeon-General A. H. Woodhull, Denver, Colo.
U. S. M.-H. Service—Surgeon P. H. Bailbache, New York.
U. S. Navy—Surgeon Bates, New York.
Dominion of Canada—Dr. F. Montizambert, Quebec.
Province of Ontario—Dr. Peter H. Bryce, Toronto.
Province of Quebec—Dr. E. P. La Chapelle, Montreal.
Manitoba—Dr. James Patterson, Winnipeg.
New Brunswick—Dr. George E. Coulthard, Fredericton.

The appointment of Mexican members to the Council was deferred until the arrival of the delegates from the Republic.

DR. H. B. HORLBECK, Health Officer of Charleston, S. C., read the first paper which was a brief one, entitled "Munici-

pal Steam Disinfection." The author illustrated his remarks by lines and drawings upon blue paper.

The succeeding essay was practically upon the same topic, "Disinfection in American Cities," by Dr. Charles V. Chapin, of Providence, R. I.

Both papers elicited marked attention and contained much valuable information concerning the methods of various cities throughout the United States. Dr. Horlbeck thinks that Charleston has the best steam disinfecting system in this country. The use of steam and a solution of bichlorid of mercury was recommended where contagious diseases were prevalent. Dr. Chapin's remarks were more extended. The statistics he presented were gathered from fifty cities in this country and Canada. Only two out of this number disinfect after measles and the other minor contagious diseases. These are Rochester and Toledo, and their systems are very thorough. New York, Brooklyn and Philadelphia were mentioned as devoting particular attention to the spread of phthisis. In Detroit, Denver and Newark, the favorite method of fumigation is with sulphur. St. Louis uses steam, and several other cities use mercuric bichlorid.

Mr. George J. Kindel, of Denver, was accorded the privileges of the Association. He is a manufacturer of bedding supplies, mattresses, etc., and dumped on the floor a collection of shoddy rags, not very clean in appearance, which he stated in a vigorous manner was a fair sample of the sort of material put into rag mattresses of the cheaper quality. He thought it was dangerous and quite likely to breed disease. He asked the Association to investigate the manufacture of such bedding, and concluded by saying:

"For years I have earnestly endeavored to bring about reform in the manufacturing of bedding. In the interest of pure and healthy bedding, I, three years ago, visited the health authorities of the cities of Chicago, St. Louis, Cincinnati, Buffalo and New York city. Also those of Liverpool and London, England.

"Near New York city is manufactured to-day, a shoddy (rag) comforter that is sold in every city in the United States. Shoddy (rag) mattresses are manufactured in every city of 100,000 inhabitants. In our beautiful city of Denver, there are two such manufactories, my own, and that of Kent & Stuchfield. It is not by choice, but by compulsion that they are made here. Chicago, Omaha, Lincoln and Wichita ship them in by the carload, hence we must make them or go out of the bedding business, as in this section four-fifths of the bedding is made of this vile stuff.

"In addition to the notice of this subject to the State Board of Health, I have again called the attention of our estemed Board of Health to this subject, while a member of the grand jury in April, 1894, when I endeavored to indict myself for making this dangerous bed filling. We had these medical officers before us to give expert testimony. They differed widely. Some went so far as to say that there was nothing unhealthy or dangerous about it. Needless to say, the grand jury did nothing, except to make a slight mention in their report to the court about it.

"So long as there is no national law governing the subject, just so long will these goods be manufactured and sold under the innocent title of wool bedding. Every drygoods and house furnishing goods store have these goods on their counters.

"The following extract from a Chicago paper may be read with interest. It furnishes a good example of the old truth that an ounce of prevention is better than a pound of cure. What precautions have we in the matter of the old rags? None, and it is an enemy tenfold greater to the public than the mails could be:

Orient Mail to be Fumigated.—*Passengers landed from the Galic after being inspected.*—San Francisco, Sept. 20.—The steamer *Galic*, which arrived this morning from Hong Kong and Yokohama, did not stop at Honolulu. She brought eleven passengers from Hiogo, the worst infected port in the Orient. No sickness was reported on the trip across and no alarm was felt by the ship's officers. Since last advices there has been an increase of the cholera plague in the Oriental ports. During the two weeks preceding the sailing of the ship there has been 6 deaths from cholera in Hong Kong, 51 deaths out of 54 cases at Fagasaki, 256 deaths out of 329 cases at Hiogo and 27 cases with 19 deaths at Yokohama. After inspection by members of the Board of Health the passengers and mail was landed, and the steamer returned to quarantine.

The postmaster to-day received instructions from Washington, in response to his suggestion, directing him to fumigate all mails received from infected ports.

The chief of police to-day ordered a house-to house canvass for the purpose of compelling all citizens to put their houses in the best sanitary condition possible.

I hope you will take up this matter earnestly, and prevent, at least, one source of contagion.

THE MICROSCOPIC DIAGNOSIS OF DIPHTHERIA BY A NEW STAINING METHOD,

was read by Dr. H. C. Crouch, of Denver, member of the Colorado State Board of Health. The author stated that the diagnosis of diphtheria by the microscopic examination of cover-glass preparations from the membrane is admittedly imperfect. By the ordinary method, we are obliged to rely upon the occurrence in large numbers, or almost pure cultures of bacilli having certain morphologic peculiarities which, however, are not sufficient to distinguish them from other bacilli found in the mouth, if such are present in any quantity. A method which would give a specific stain as with the tubercle bacilli would evidently be of the greatest importance. Such a stain has not yet been found. Fortunately it is not necessary to have a stain so specific as to detect single diphtheria bacillus, for they are invariably present in a certain quantity, if present at all. A method which will detect certain of them with some degree of certainty would be sufficient in most cases, and such a method it seems to me I have found, at least if used with the proper precautions and with sufficient skill. I believe from my experience with a large number of cases that this method will suffice to determine the diagnosis in a very large percentage of cases.

In conclusion, he said, that the diphtheria bacillus as seen in preparations from cultures consist of bacilli of varying sizes, the larger ones particularly presenting characteristic features in the way of club-shaped ends and irregular staining, but all forms showing a tendency to the alteration of deeply and lightly stained portions. In addition to this, and distinct from it, are certain round or oval bodies which may be made apparent by certain methods, the existence of which was brought to our attention by Babes, Neitser, and Ernst. The method pursued by the latter was to stain strongly with hot methylene blue, and follow this with bismarck brown. These bodies would be blue, the rest of the bacillus being brown. I have been investigating the feasibility of employing this peculiarity of the diphtheria bacillus to differentiate it from other bacilli found in the mouth, and with a degree of success beyond expectation. I found, likewise simpler methods of staining, and peculiarities which I believed have escaped attention hitherto. If a fresh serum culture is stained momentarily with a 1 per cent. solution of methyl green, it is often possible to bring out these bodies without further treatment. Treated thus they have the peculiarity of reddish granules in a faintly green bacillus, usually one at each end. By staining with methyl green more strongly and following with methylene blue, bacilli with red dots resembling spores will be seen. These bodies have apparently a peculiar affinity for methyl green, with which they enter into a chemic combination resulting in change of color from green to red. He had consequently employed methyl green for their detection. By adding other colors, the penetration of the methyl green may be increased, and a double stain obtained immediately. I found dahlia most useful, employed in the following proportions: 1 part of 1 per cent, dahlia water, 5 parts 1 per cent. methyl green, and 4 parts water. If either color predominates in the stain too decidedly, the other color is cautiously added until the desired result is tested on the bacilli from which a culture is obtained. The stain works instantaneously, and if too deep the effect is not obtained. In such a case, the cover-glass may be treated quickly with bismarck brown, which replaces the dahlia in the body of the bacillus, leaving the bodies described standing out in contrast. I have tested this method on a large number of cases during the last six or eight months and have never failed to find the result of the culture positive where I found these forms present in the cover-glass examination. In one case where I had diagnosed diphtheria, the first culture was unsuccessful, but the second culture which I had taken, confirmed the diagnosis, which fact, it seemed to me, indicated that the direct examination should always have its place in addition to the culture. These bodies I do not consider to have any connection with spores in spite of their superficial resemblance. They are found in the greatest numbers in young freshly growing cultures, and are much less abundant in older cultures. They may be readily detected in cultures only a few hours old, and thus made use of to confirm a diagnosis earlier than the full development of the culture. That they are not degenerative forms is evident from the same considerations. I am inclined to attribute a nuclear nature to them, and propose the name *nucleoid* bodies. They are evidently connected with the active growth, and are absent in the resting forms, suggesting thus the resemblance with indirect cell division. Being particularly

abundant during the earlier and more rapid growth, they are readily found in the earlier stages of the disease, and from the ease with which they may be brought out, they acquire a very great practical importance in the microscopic diagnosis of diphtheria.

In the discussion that followed, by Drs. Mitchell and Kinyoun, the latter gentleman said among other things, "that all methods are a question of doubt in diagnosis." Other members who discussed the paper and viewed the slides under the microscope were Drs. Swartz-Chapin, Wright, Shrader, Guilbert, Leal and Montgomery.

At 11:45 o'clock the Association adjourned until 2:30 P.M.

SECOND DAY—AFTERNOON SESSION.

The Association convened at 2:30 P.M. with the President in the chair.

The first paper announced to be read was by DR. EDWARD JACKSON, of Colorado Springs on

SUGGESTIONS AS TO OCULAR HYGIENE IN THE SCHOOLS.

Among other statements, the author said, all schemes for the improvement of the ocular conditions of school rooms failed more or less to take into consideration the necessity of teaching children how to use their eyes. The child is not taught to use his eyes, nor is he taught how to avoid eye strain. To accomplish this it is necessary to teach the teachers a few things which they usually do not know. Much of the work done has been merely in showing the defects existing without showing any remedies. Even if it were usual to have examinations made of the eyes of the children, this would not be sufficient. If the teachers do not themselves understand the eye they can not teach its proper use. The eye itself is not a sufficient monitor, as indicated when eyes are habitually used after they are tired. The matter of fair limits of study, and the lighting of rooms should be given careful consideration in every instance. The more light the better, so long as the light is not blinding. The point of determination should be the darkest part of the room. By an arrangement for diffusing and mellowing the brilliant rays, and throwing them into the darker corners, the room can be made satisfactory. The relation of floor space to window space does not by any means furnish the proper standard for determining the proper amount of light. The conclusions arrived at were:

1. The child should be trained in the use of its eyes.
2. The supervision of the work in the school room as to the way in which children use their eyes should be constant.
3. More care is needed in lighting school rooms.

In the discussion, DR. R. H. LEWIS of Raleigh, N. C., said, one trouble was, that the child was permitted to stoop over his desk. He called attention also to the great improvement which the system of vertical writing affords over the old slanting system, which made it impossible for a child to assume a wrong attitude at the desk.

DR. JAMES MADISON WATSON, of Elizabeth, N. J., said—the question under consideration is of the utmost importance, and he hoped that there would be some practicable suggestions for future work. He emphasized the fact that Nature must be aided in this, as in all things. A man walking on a street in a city, gradually learned to see many things at once without appearing to see anything. The child must be trained to see many things at once, but not too many. Most people see too much, consequently they use the eye too much.

DR. H. D. HOLTON, spoke of the trouble and danger arising from constantly changing the focus of the eye of the child in school, looking from the blackboard to the book, and back again frequently. School directors should investigate this matter and provide against such a danger to children's eyes. Distant focus and near focus should be more intermediate when a child has to study simultaneously its book and a blackboard.

DR. A. G. YOUNG stated, that it was more trying to read from the blackboard than from the book, because the range of vision was usually less, the figures were not so plain and the light was often bad. He thought there should be great care exercised in this matter.

DR. S. H. DURGIN inquired of the essayist, if there had been any examination made by an oculist of the children's eyes. He thought there should be an inspection of children in all schools to ascertain their ocular powers, as there is great variety of vision and the same requirements should not be made upon all alike. Teachers should learn the peculiar characteristics of each child and always consider them.

DR. H. M. BRACKEN of Minnaapolis, Minn., considered that teachers should be taught enough to discover faults in the eyes of pupils and know which ones should be sent to an oculist for closer examination.

DR. JAMES A. STEWART of Baltimore, Md., inquired if a blue board would not be better than a black board—he thought perhaps, black boards are oftentimes too shiny.

DR. JACKSON closed this interesting discussion. He mentioned several methods for teaching children to see quickly and accurately. He stated the fact that the illumination should be centered upon the thing looked at and as little as possible upon other things. It is very difficult to see figures on a black board because of the polished surface. Black board work is also hard on the eyes because of the uncertain amount of reflection of outside light. He had purposely kept the number of points in his paper down to the minimum, thinking it would prove more interesting to do so. As for the examination of children, he thought it an anomaly that they were questioned so closely concerning their former studies and so little concerning their physical powers, their ability to see, hear, and feel: He would not underestimate the advantages of having physical investigation of individual children, for he thought this quite necessary, if not more so than to look after the conditions of all children. He thought it was a mistake which surely only needed to be brought to the attention of school directors. The system in vogue in examining the eyes of railway employes might be introduced in the schools with good effects. Regarding the color of the board he thinks this is of less importance than the reflection of the board. If a board, dead black, with no gloss, is secured, it will not injure the eyes.

The second paper of the afternoon, was

ON THE OUTLOOK FOR A GENERAL SYSTEM OF REGISTRATION OF VITAL STATISTICS IN THE UNITED STATES,

presented by DR. CRESSY L. WILBUR, division of vital statistics, State department, Lansing, Mich. The Doctor began by quoting a prophecy made at the first meeting of the Association twenty years ago by Dr. Elisha Harris, who thought at that time that the United States would have a perfect inter-State system of vital statistics before the end of this century. He took up the points and showed why it was that this prophetic vision had not been realized, and continued by stating that the dependence of accurate registration of vital statistics upon a certain degree of density of population, was illustrated by the experience of this country and Europe. Limits of density of population were suggested below the minor of which accurate registration is practically impossible, and above the major of which such registration naturally goes into effect as an indispensable adjunct of social organization. The condition of the United States as a whole was considered with reference to such limits, and the conclusion reached that the advent of a general system of registration for this country is much more remote than many vital statisticians have supposed. A review of the actual results of State registration in all the States of this country having systems of registration, good, bad and indifferent, was presented for the past fifteen years by means of a table of registered death rates and a diagram. The favorable and unfavorable facts bearing upon general registration were noted, and suggestions made whereby a fairly representative, though partial, return of mortality from a large part of the United States may be obtained until the general advance in populousness will admit of general registration. Among these means are: 1, the promotion of municipal registration, and a fuller utilization of the results of such registration; 2, supporting the work of the United States Weather Bureau of the Department of Agriculture, in its studies of sanitary climatology recently undertaken; 3, extension of the methods employed by Dr. Billings in the compilation and study of the mortality statistics of the eleventh census, together with the establishment of a permanent division of vital statistics as an important part of any proposed permanent census organization; 4, prevention of retrograde action on the part of any States sufficiently advanced in wealth and populousness to support accurate systems of registration. It was further urged that the attention of the boards of commissioners appointed by many States for the purpose of securing greater uniformity of statute laws, be called to the importance of uniform legislation relating to the registration of births and deaths.

There was no discussion on this paper.

DR. CHARLES DENISON introduced a series of resolutions favoring the creation of a National Department of Health, with special reference toward prohibiting the immigration to this country of diseased and otherwise unfit persons, also with power to guard against the introduction of contagious and

infectious diseases, which were, under the rules, referred to the Executive Committee.

DR. HENRY D. HOLTON moved, duly seconded, that when the Association adjourns on Friday, it does so, to reconvene at Colorado Springs on Monday morning, the 7th inst., at 10 o'clock, for a short session. The motion prevailed.

THE PRESIDENT announced the following gentlemen to constitute the Special Committee in reference to the "International Pollution of Waters Problem," as suggested during the forenoon of Tuesday's session: Dr. P. H. Bryce, Rudolph Hering, Dr. C. O. Probst.

The report of the Auditing Committee upon the Treasurer's annual report was next heard. The report stated that all vouchers for disbursements of funds, and the entire report of the Treasurer was found correct. The report was adopted.

DR. WILBUR submitted the following resolutions, which were referred to the Executive Committee:

Resolved, That the American Public Health Association cordially commends the action of the Weather Bureau of the United States Department of Agriculture in undertaking the collection of data relating to sanitary climatology.

Resolved, That the American Public Health Association indorses the method first employed in the last United States census, of studying the vital statistics of certain American cities, as registered by local authority, for a series of years, and recommends that such method of treating vital statistics be carried out, so far as may be practicable, by the twelfth United States census for each year of the present decade. Inasmuch as the collection of accurate vital data implies continuous, and not intermittent, action on the part of the central registration authority, it is obvious that a permanent division of vital statistics, as a part of a permanent census bureau, is essential to the proper conduct of this important branch of the decennial census.

Resolved, That a committee be appointed to prepare a draft of a registration law (or to formulate the principles to which a registration law should conform) suitable for adoption by States not having at present an accurate system of registration of births and deaths.

Resolved, That a committee of the American Public Health Association be appointed to present to the boards of commissioners appointed by certain States to promote greater uniformity of statute laws, the importance of uniformity in the methods of registration of births and deaths in the several States of the Union.

The Association then adjourned until 10 o'clock A.M., Thursday.

THIRD DAY—THURSDAY, OCTOBER 3.

The Association did not convene until 11 o'clock owing to the protracted session of the Advisory Council which held nearly a two hours' meeting during the forenoon. PRESIDENT BAILEY presided. The first announcement was a report from the Executive Committee on the resolutions offered by Dr. Wilbur during the preceding afternoon. The Committee recommended that the resolutions be submitted to the Committee on Nomenclature of Diseases and Forms of Statistics, which upon motion duly seconded was so ordered. After a number of announcements by the chairman of the Local Committee of Arrangements, the first paper announced on the program was on

NATIONAL LEGISLATION FOR THE CARE OF THE PUBLIC HEALTH,

by DR. WM. P. MUNN, Commissioner of Health, Denver, Colo., in which he said the failure of Congress to support the National Board of Health which ended its existence some ten or twelve years ago has been a source of deep regret to working sanitarians of the whole country. It seems to be an axiom with our national legislators that cattle and hogs are of infinitely more importance than are human beings. There are, therefore, in existence in this country half a dozen kinds of institutions whose existence depends upon the amount of noise they make about the investigation of diseases of the great American Hog and other animals whose welfare is of much importance from a monetary standpoint, to the agricultural classes. The medical profession has for a number of years been asking Congress, with little apparent prospect of success, to establish a Department of Public Health, which shall give to the interests of human beings at least as much attention as has been bestowed in the past upon farm animals. Congress has practically told the medical profession that the interests of human beings are not of sufficient importance to demand national legislation for their protection. It is apparently futile to demand of Congress a recognition which it is so loath to give. For this reason I have thought of making a proposal of a different nature, which it is hoped will not arouse antagonism, and being based upon the same general plan as that which has been so uniformly successful in securing recognition for the agricultural element of our nation, will at the same time appeal to the selfish interests of the various Congressmen in making an appropriation for expenditure by the various State authorities and to this extent strengthening certain already existing State institutions, without the State itself being forced into any further expenditure for the purpose. Briefly, the proposition is this: to establish in each State and Territory in connection with each State Board of Health now established, or which may hereafter be established, a State Laboratory of Hygiene which shall be supported by an annual appropriation from the National Congress. The plan is formulated upon the same basis as that upon which was established the agricultural experiment stations in connection with the various agricultural colleges in each State. These experiment stations have been an unqualified success in many of the States, and have been instrumental in arousing an enthusiasm among scientific agriculturists and promoting sensible experimentation among farmers. It is hoped that a similar beneficial influence would be exerted by the establishment in each State of a Laboratory of Hygiene in connection with the State Board of Health. In States where no State Board exists, the fact that the Congressional appropriation might be available would be a sensible stimulus to the enactment of statutes creating a State Board. State Boards having the usual dribbling allowance that is made for their support by the average Legislature, because the doctors composing their membership are not politicians of sufficient influence to secure proper recognition, would be placed upon a firm financial footing and made capable of doing their proper work and wielding their proper influence in their respective communities. The many advantages that would accrue to sanitary science from the coöperation of forty or more laboratories, working by coördinate methods upon similar problems can not be more than hinted at. The vast improvement which would follow in the sanitation of all local communities in the natural course of events should succeed to the positions of local health officers, now only too often held by pot-house politicians, would result in an incalculable saving of human lives.

I submit the proposed bill without further comment:

An Act to establish Laboratories of Hygiene in connection with State Boards of Health existing by law in the several States.

SECTION 1.—Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with public health and to promote scientific investigation and experiment respecting the principles and applications of hygienic science, there shall be established under the direction of the State Boards of Health in each State or Territory established, or which may hereafter be established, a department to be known and designated as a "Laboratory of Hygiene."

SEC. 2.—That it shall be the object and duty of said Laboratories of Hygiene to conduct original researches or verify experiments upon the diseases to which human beings are subject, and methods of prevention of the same; the chemic composition of human and animal substances of various kinds; the production within the animal organism of toxins and antitoxins; the comparative advantage to human beings of residence in certain localities and under certain climatic and meteorologic conditions; the effect upon the health of human beings of varying conditions of soil, atmosphere, altitude, occupation, food, drink, clothing and dwelling places; the scientific and economic questions involved in the study of disease and disease prevention and such other researches and experiments bearing upon the health of human beings as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States and Territories.

SEC. 3.—That in order to secure as far as practicable, uniformity of methods and results in the work of said laboratories, it shall be the duty of the Supervising Surgeon-General of the Marine-Hospital Service to furnish forms, as far as practicable, for the tabulation of the results of investigation or experiments; to indicate from time to time such lines of inquiry as to him shall seem most important; and in general, to furnish such advice and assistance as will best promote the purpose of this act. It shall be the duty of each of said laboratories annually, on or before the first day of February, to make to the Governor of the State or Territory in which it is located, a full and detailed report of its

operations, including a report of its receipts and expenditures, a copy of which report shall be sent to each of said laboratories, to the said Supervising Surgeon-General of the Marine-Hospital Service and to the Secretary of the Treasury of the United States.

SEC. 4.—That bulletins or reports of progress shall be published at said laboratories at least once every six months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to all public health officers and to such other persons actually interested in matters of public health as may request the same, so far as the means of the laboratories will permit. Such bulletins or reports and the annual reports of said laboratories shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster-General may from time to time prescribe.

SEC. 5.—That for the purpose of paying the necessary expenses of conducting investigations and experiments, and printing and distributing the results, as hereinbefore prescribed, the sum of $15,000 per annum is hereby appropriated to each State, to be especially provided for by Congress in the appropriation from year to year out of money in the Treasury, to be paid in equal quarterly installments, on the first day of January, April, July and October of each year, to the treasurer or other officer duly appointed by each of said State Boards of Health, to receive the same, the first payment to be made on the first day of October, 1897; Provided, however, that out of the first annual appropriation so received by any laboratory, an amount not exceeding one-fifth may be expended in the erection, enlargement or repair of a building or buildings necessary for carrying on the work of said laboratory; and thereafter an amount not exceeding 5 per centum of such annual appropriation may be so expended.

SEC. 6.—That whenever it shall appear to the Secretary of the Treasury, from the annual statement of receipts and expenditures of any of said laboratories, that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such laboratory, in order that the amount of money appropriated to any laboratory shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7.—That nothing in this Act shall be so construed as to impair or modify the legal relations existing between any of the said laboratories or Boards of Health and the government of the States or Territories in which they are respectively located.

SEC. 8.—That in States having Boards of Health entitled under this section to the benefits of this Act, and having also Laboratories of Hygiene established by law, separate from said Boards of Health, such States shall be authorized to apply such benefits to investigations, researches at laboratories so established by such States; and no Legislature shall by contract, express or implied, disable itself from so doing.

SEC. 9.—That the grants of moneys authorized by this Act are made subject to the legislative assent of the several States and Territories to the purposes of said grants; Provided, that payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its Legislature meeting next after the passage of this Act shall be made upon the assent of the Governor thereof, duly certified to the Secretary of the Treasury.

SEC. 10.—Nothing in this Act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all of the States or institutions mentioned in this Act, but Congress may at any time amend, suspend or repeal any or all of the provisions of this Act.

There was no discussion upon the foregoing topic or resolutions.

An abstract of a report by E. B. Weston, C. E., of Providence, R. I., upon "Bacterial Results from Mechanical Filtration," was read by Dr. Gardner T. Swartz. (This paper will be printed in the JOURNAL hereafter.)

The next paper was presented by DR. S. H. DURGIN,

ON MEDICAL INSPECTION OF SCHOOLS.

The author said: It is my purpose to give a brief statement of how work is done in Boston, and the result of four months work, as the machinery to do this was set in motion Nov. 1, 1894. The statistics given showed that over one thousand cases of contagious and infectious diseases were detected in time to prevent a spread of the contagion by the medical inspector. The city is divided into fifty school districts, giving an average of about four school houses and 1,400 pupils to each district. One physician was appointed by the Board of Health for each district at a salary of $200 a year. It is his duty to make a visit to each master of schools daily, soon after the beginning of the morning session. The master receives from each of the teachers in the district, early reports as to the appearance of symptoms of illness in any pupil under their charge. These reports are given to the visiting physician who at once examines the child and makes a record of his diagnosis and action; if the physician finds the child too ill to remain in school, it is sent home for the care of the parents and the family physician. . . . . Only favorable reports have been made concerning the operation of the plan. The corps of medical men serve an excellent purpose in the control of contagious disease. The work is generally approved by the medical profession, by school teachers, and the community at large. For $10,000 a year, the teachers and 70,000 school children have the benefit of well selected medical oversight.

The succeeding paper was a very voluminous one, namely, "Report of the Committee on the Disposal of the Dead," which was read by the Chairman, Dr. Charles O. Probst. It was largely historical, as the committee had taken considerable pains to gather most valuable statistics regarding cremation in this country. The report will be printed in full in this JOURNAL later.

DR. A. WALTER SUITER, of Herkimer, N. Y., followed with a paper, entitled,

ON THE DISPOSAL OF THE DEAD, HAVING SPECIAL REFERENCE TO THE PREVALENT PRACTICE OF EMBALMING.

Herewith is a very brief synopsis, as the paper in its original form will be published in the JOURNAL next month:

"From remotest antiquity to the present time, topics relating to the disposal of dead bodies have been universally interesting. No subject has been more carefully studied from all points of view, and yet it is not inconsistent with facts to state that no material advancement as to methods of preservation or final disposition has been made over those which were practiced more than twenty centuries ago. Indeed, there is a growing belief in the public mind that to return to the custom generally in vogue previous to the Christian era (cremation) would solve many perplexing problems with which sanitarians are not unfamiliar."

The Doctor referred to the customs of mummifying the bodies of Egyptians and the practice of cremation in Greece and Rome. The common custom of burial of the dead he thought obtained originally from the Chinese.

"According to early chronologic records, no branch of art was cultivated in higher degree than that of the embalming of the human corpse. Affection and superstition—always the greatest motive powers of the world—together with the prevalent fanciful ideas associated with death and subsequent everlasting life, all combined to give the greatest prominence to the extraordinary, elaborate and costly methods which were employed in the remote periods of civilization for the preservation of dead bodies in order that they might be kept uninterred."

In regard to the present custom of embalming, the essayist argued that there is too much carelessness shown in doing the work by undertakers, without legal regulation to obviate it. It is the doorway to an enormous and systematic deception—a commercial fraud, in fact, as a comfortable fee is charged for the service.

"To illustrate," said the Doctor, "take the case of General Grant. Extraordinary precautions were taken to preserve the body. The embalming was done in accordance with methods in vogue, but a few days later when the remains reached Albany, the well-known features of the distinguished man were almost unrecognizable."

The danger of embalming as a means of concealing crime by poisoning was referred to, and incidents cited to show that it had been done.

The result of careless embalming, the essayist claimed was not dangerous. "Gallons of poisonous solutions are squirted into bodies indiscriminately, which are in an incredibly short time imbibed by other bodies in cemeteries and are absorbed by contiguous soils and streams and also wells that are fed by subterranean waters which receive the percolations of graveyards filled with bodies thus treated. For example, a recent examination of the waters of Scajaquadu Creek, which flows through Forest Lawn Cemetery, Buffalo, were found to be impregnated with considerable quantities of arsenic of this kind used in the prevalent method of embalming."

A law to regulate embalming, the essayist considered imperative.

At 1:30 o'clock the Association adjourned until evening.

THIRD DAY—EVENING SESSION.

The Association reconvened at 8 o'clock in Unity Church, with PRESIDENT BAILEY presiding.

The first paper was read by DR. S. E. SOLLY, of Colorado Springs, Colo.,

ON THE INFLUENCES PECULIAR TO HIGH ALTITUDES UPON SANITARY CONDITIONS.

The paper was a carefully prepared treatise. The author said in part: With diminished barometric pressure we have less pressure upon the body, hence a diminished amount of oxygen. High altitude increases the red corpuscles in the blood. The heart is increased in strength and made larger, and the blood has greater ability to absorb oxygen. The lungs are rendered more powerful to resist germicidal tendencies. There is a more vigorous circulation, hence more violent inflammatory action may supervene, as in acute pneumonia. Better results are attained in anemia, or neurasthenia, or where anemia is a prime factor in a disease, also in chronic germ disease as in tuberculosis. The germicidal power of the blood is strengthened. Typhoid and scarlet fevers and measles are of much milder form than in a lower climate and oftentimes they are unrecognizable. Convalescence is more rapid and complete than at sea level. In elevated climates there is greater increased precipitation. If dizziness supervene, this lessens the temperature upon the body. Sunstrokes as a matter of course are rare. Myalgias and pleurisy are frequent. Dry air, sunlight and sun heat increases nerve tension. Dry air allows the sun to shine with greater brightness, therefore with more vivifying effects. On the other hand, if the physique is depressed, the effects will be as fatal as in lower climates. Horses raised in high regions had been able to endure much fatigue. It was the same with men, who had a larger lung expansion. The dryness improved the action of the skin, liver and bowels in one class of persons, while in another it decreased their action. Disease is less easily acquired in high altitudes. Nevertheless, people living there must observe as proper sanitary precautions as though they lived elsewhere. The author also argued that the amount of hemoglobin in the blood is increased. The chest expansion as is remarked frequently by almost all observers is augmented, and especially are the apices of the lungs of the native born children and old residents better filled with air. Further deductions were to the effect that where there are other deficiencies in the blood, provided that other conditions do not exist, high altitude is a most important factor and influence in the treatment as well as prevention of disease.

DR. HENRY SEWALL, in the discussion said that no such paper should be read without some discussion upon it, as our ignorance of the physiologic condition and vital forces that high altitudes exert upon the human economy is so great. No such field for the study of any similar topic presents itself to my mind as this one of the simple problems of blood pressure, etc. We should all take up the study of this subject, of the effect of high altitudes upon hearts, to study if their area of dullness is increased, also regarding the increased or decreased action of the liver and skin. If there is a decreased action of the skin, the kidneys must reply. He has treated cases, and illustrated his remarks, where the urinary secretion is enormous, and where hyalin, granular and epithelial casts are very common indeed, due, as he stated, where there was no pathologic condition, but attributable to a less active condition of the skin. He thought it was a shame that those who lived in high altitudes did not experiment more upon the effect of high altitude on health. He pleaded for individual observation for researches in this altitude, and an earnest desire for truth. Regarding his personal experience; years ago, before removing to Colorado, a "homeopathic" physician advised him not to do so, as he would die within a week. He came here, however, and was glad to be disappointed.

DR. DOMINGO ORVANANOS, of the city of Mexico, who followed, stated that there was an institution in his city where experiments were made upon the effects of altitude upon disease. The average number of red corpuscles in the blood, in the high altitude of the city of Mexico, were several millions more than in persons who dwell in a low altitude. Consumption in the first and second stages was very easily cured. Pleurisy is not as common in Mexico as it is here. The remainder of his remarks were confined principally to the methods of heating the houses in Mexico.

DR. PETER H. BRYCE spoke at some length regarding the prevalence of catarrhal troubles and diphtheria which prevails unusually in the central States of the country, and of the large mortality from the latter disease in his province, as well as in certain portions of the United States. In Ireland the mortality of those dying of diphtheria is one-third less than in England. In England, those who succumb to diphtheria are one-half less than in Ontario, hence her record is better than in Canada, while in Ontario the mortality from diphtheria is the same as in the United States. If the methods of heating dwelling houses have anything to do with the prevalence of diphtheria, or of inducing diphtheritic throats and so-called catarrh, wherein is the relation between abnormal dryness and these maladies? He desired to know about the frequency of catarrh said to exist in this climate?

DR. CARL WENDE desired a little more information regarding the presence of hyalin casts in the cases cited by Dr. Sewall.

DR. EDUARDO LICEAGA, of Mexico, stated that the climate of Mexico is divided into three zones. High altitude, which is 2,000 meters above sea level, medium altitude which is below this, and low altitude or sea level. In the latter zone, tubercular disease is very frequent, and microörganisms were readily recognized there. The disease is difficult to cure. In the medium altitude, phthisis prevails to a very much less extent, while at 2,000 meters, or above this, it does not exist at all.

DR. GREGORIO MENDIZABAL, of Orizaba, Vera Cruz, Mexico, briefly stated his observations by calling attention to the influence of humidity in different litttle towns of the Republic, on the development of phthisis. Dampness also has a great deal to do with development of microörganisms and this disease.

DR. SOLLY concluded by saying: We cry loudly for careful research and the study of facts regarding the influence of high altitudes upon the human system. Physiologists state it as a broad proposition that a high climate is good for thin blooded people. He answered Dr. Bryce by stating that diphtheria was not uncommon on high ground, and when it did exist it was not so contagious as on low ground, but if it became contagious it was likely to be very virulent. The peculiar conditions of the dryness of the upper air passages render them more easy for lodgment of germs, and then disease is more serious in high altitudes, and yet high altitudes are prejudicial to germ diseases. As regards humidity, we know this will induce tubercular difficulties. Cold and dampness combined is also a peculiar element to bring it on. The relative frequency with which phthisis is induced might be studied and compared, in a cold damp climate and a hot damp climate. Catarrhal troubles exist frequently and indiscriminately in different climates.

The next topic announced on the evening's program was the "Report of the Committee on the Abuse of Alcoholic Drinks from a Sanitary Standpoint," and was made by Dr. Felix Formento, Chairman, of New Orleans, La. The subjoined excerpt is herewith presented, as the report *in toto* is a most extensive one:

The crusade against alcoholism is universal, and the question is now being investigated in a most scientific and thorough manner. Physicians, clergymen, statesmen and others have banded themselves together, hoping to eradicate the abuse of alcoholic drinks.

Alcoholism does not apply to taking a glass of pure wine at meals or a glass of pure whisky. The use of beers and wines at meals might be commended—both were valuable because of their nutritive qualities; they helped digestion and invigorated without intoxicating. He defined alcoholism to mean the chronic excessive use of alcoholic drinks. The drunkard should not be confounded with the gentleman who takes his wine at table. The habitual use of strong liquors can not be too strongly condemned.

French brandy, when pure was less injurious than either rum or whisky. In wine-growing countries like Italy, alcoholism was almost unknown. One of the committee, it was related lived six years in Italy, and never in that time saw a really drunken man, but only jolly, good-natured ones. This incident was mentioned in connection with a statement that there is less intoxication in wine-growing countries and districts than in portions of the country where no wines are grown. The worst alcohol is the potato article, which contains the deadly fusel oil. In America many of the distinguished men of the country are addicted to the use of alcohol, and it seemed to be the national vice. This is the only country in the world where the people high and low drink standing, without eating, and without being thirsty.

Alcoholism is one of the potent factors in crime, suicide and poverty. It peoples the hospitals; it is responsible for cripples, epileptics, and while it exists mostly among the

poorer classes, the wealthy and intellectual do not escape. Many of the brightest statesmen, scholars, and professional men are addicted to the habit. Much of the disease caused by alcoholism is really due to adulterations. For years France did not produce any real wine because of a disease of the vine. Then toxic alcohol was introduced and was converted into numerous liquors deadly to life. Afterward alcoholic diseases increased.

Reference was made to the almost countless saloons throughout the country of both low and high degree—the grog shop and the drinking palace. Attention was called to the growing habit of social drinking; this the reporter decried as much of the intoxication of the country was attributed to it. Beside this, the habit has extended into the home circle, and many fashionable women do not now consider it out of the way to take their regular whisky punch or cocktail. The establishment of American saloons in London and other continental cities was due to the growth of the drinking custom and American travel abroad.

Alcoholism, it was maintained, is responsible for more deaths and diseases than anything else.

In concluding, the report urged that the United States government have charge of all alcohol in every branch of its manufacture. An increased tax on all liquors was urged. Increase the penalties for adulterations, remove the tax on beer, wine and coffee. Total prohibition in communities composed of vicious classes, high license to diminish the number of bar-rooms and cause better liquors to be sold; enforce a strict sanitary inspection of all drinks sold over the bar, promote the culture of grapes, double the penalty for selling to minors, heavy fines for drunkards, and that habitual drunkards or drunken men should be sent to jail, and that when sent to jail they should not be allowed to lie idle but be required to work. The condition of the workingman should be improved. Eating houses should be established, although the American cuisine is inferior to what it should be—not because of lack of products, but because the people do not know how to prepare a meal or how to eat it. To this end cooking schools should be established. The use of black coffee was recommended in greater quantities, for it is a fact, in the great coffee consuming countries, like Turkey, intoxication is unknown. The concluding paper was an essay entitled "Degenerative Heredity, or some Degenerative Influences of Modern Civilization on Health," by Dr. Charles Denison, of Denver. The following is a carefully prepared abstract:

The discussion of this question was divided in five propositions.

First, the advance in the healing art, in so far as the saving and prolongation of life is concerned, suspends the law of natural selection and permits the weak to propagate their kind.

The tendency to or aptitude for tuberculosis in the offspring was the main point dwelt upon. The doubling of diseased tendencies in the progeny of those consumptively inclined was emphasized as a result of the intermarriage of certain classes. Analogies were noted in the high-breeding and in-breeding of cattle, and the results were given which explain the remarkable prevalence of tuberculosis in all the highest bred herds. The conclusions were given, going to show that high-breeding is synonymous with in-breeding and this surely leads to scrofula which in turn is a sign of or surely leads to tuberculosis. Illustrations of similar effects were given in the human family, and the resulting decadence or degeneration in the highest grades of aristocracy and plutocracy were explained.

As to the disease consumption, "with all our splendid climatic and other advantages arrest is not the eradication of the disease; on the contrary, the total of hereditary influence is necessarily increased because more affected persons survive. . . . The vicious seed is not destroyed but preserved to be again mixed with the good . . . and it becomes a serious problem how a community like that in Colorado, largely made up of recovered invalids, will be governed in future, that a normal state of health may be assured to her inhabitants."

Second Proposition.—The present civilization stimulates the intellectual and nervous system to such an extreme as to injure the physical (reproductive) powers and favor sterility.

The results of the strivings to excel both in the social and intellectual world are given in the working out of a law of decadence of the race—a failure at the top which has to be made good from the lower orders or there would be an extinction of the race. "This all serves to confirm the statement of Royce in 'A Study of Genius' that "mental exertion actually restricts the reproductive energy."

"This tendency to degeneration and to consequent race extinction among those classes devoted to advanced intellectual pursuits, is by no means a peculiarity of sex. That women are not exceptions to the rule is shown by the remarkable paucity of healthy living children born of members of high class women's debating clubs, as well as of authoresses, lecturers and female physicians."

Third Proposition.—The social, commercial and manufacturing phases of our civilization favor indoor and effeminate modes of life which are detrimental to successful development, and inheritance propagates the depreciated life force.

Statistics were appealed to in support of this proposition. The large proportion of our people devoted to what may be classed as indoor occupations is shown by the census report of 1890, where what may be called the outdoor occupations, *i.e.*, agriculture, fisheries and mining, are represented by about 9,000,000 souls, and "professional service, domestic and personal service, trade and transportation, manufacturing and mechanical industries all together by about 13,7000,000."

Fourth Proposition.—The independence and self-supporting of women in clerical positions removes from the probability if not the possibility of successful motherhood, a considerable portion of the so-called gentler sex, through the resulting great decrease in matrimony and the exhaustion of the vital powers of women in nerve taxing occupations. Among other facts presented in support of this proposition, was the increase in the females represented in various occupations as shown by a comparison of the census of 1890 with that of 1880. One item of which comparison—that of "Trade and Transportation"—showed an increase of males so employed of 71 per cent. and of females 263 per cent.

Fifth Proposition.—The present unaided efforts of natural selection should be supplemented by warning the young before matrimony; the masses ought to be educated physiologically that the laws of heredity may be understood, that physical development and mental strength may be appreciated, and the responsibilities of parentage recognized. The State and the nation have a duty to perform. The literature extant, and that needed to instruct young people in the choice of their mates in life was here discussed, and a rule for choice of partners to avoid consumptive offspring, original with the author, was presented based upon a combination of main factors: 1, the percentage of a party's parents, uncles, and aunt's children who had survived the age of five years; 2, the inheritance of the party to consumption, cancer or scrofula; 3, the party's own health; and, 4, the doubling of bad strains by the intermarriage of those with like defects.

"Considering that the object of matrimony is the begetting of children, it would be a good thing for the State to legally recognize that it is as much a sin for an invalid in advanced consumption to marry, as it is for a leper or an insane person. As for two tubercular or scrofulous persons marrying each other, it ought to be prevented by law if possible; otherwise it ought to be understood that such tainted unions are not for the purpose of progeny. Since the law is not allowed to interfere and help solve this problem, the only recourse is *education*. With us Americans this is the saving grace from the universal law of degeneracy. The lower strata are constantly made capable and worthy to take the places made vacant by degeneracy in the upper. To give character, mental force and healthy bodies, fit for the propagation of a truly noble race, a change in our system of education is needed." The introduction of physical training is needed and the regular superintendence of the physical condition and habits of scholars, also the introduction of science teaching, the teaching of physiology and anatomy, and finally, in seminaries and colleges, direction should be given to all this previous acquirement by books purposely written for both young men and women, to enable them to understand the whys and wherefores of the correct mating of the sexes.

Owing to the inclemency of the weather and late hour, the foregoing report and address were but briefly discussed.

DR. J. M. WATSON did not favor the committee's report on alcohol and much else that was therein contained. There are two points in Dr. Denison's address regarding heredity and conception that he thought we all concurred in, but it was too late to discuss either of them.

DR. W. L. SCHENCK, of Colorado, did not support the views advanced by Dr. Formento in his report. He denied that Americans were a nation of drunkards. The names of the breweries and on the liquor stores in cities showed that foreigners kept them.

(To be concluded.)

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SATURDAY, OCTOBER 19, 1895.

ANATOMIC CAUSES OF THE DISTURBANCES OF COMPENSATION IN VALVULAR HEART LESIONS.

The causes which lead to death on account of the disturbance of compensation in valvular heart disease are not yet thoroughly understood. AUERBACH[1] concluded that muscular hypertrophy is not accompanied with a proportional increase in the blood vessels so that the muscular fibers undergo retrogressive changes on account of a lack of nutrition. FRIEDREICH[2] assumed that hypertrophic muscular fibers so compress the capillaries during contraction as to hinder their own nourishment. NOTHNAGEL[3] believed that these assumptions in regard to the skeletal muscles could both be applied as to the heart. There are, however, no anatomic demonstrations of the truth of AUERBACH's theory and the investigations of LUDWIG[4] have shown that the capillaries dilate during muscular contraction so that the muscle is then hyperemic rather than anemic.

The causes of disturbance of compensation in aortic lesions are fairly well understood. In most cases the lesions of the aortic orifice develop in consequence of an atheromatous process which spreads from the aorta into the semilunar valves. Sooner or later the coronary arteries become involved in the same process and these changes in the intramyocardial vessels lead to obliteration of smaller arteries and a consecutive degenerative atrophy of the muscular elements and hyperplasia of the connective tissue. The progressive disappearance of muscle fibers naturally leads to a diminution in the contractility of the cardiac muscle which finally becomes unable to longer maintain the equilibrium of the circulation and asystole appears.

[1] Banti, Centralblatt f. Allg., Path. Anat. vi B. No. 14 and 15. [2] Banti, loc cit. [3] Banti, loc cit. [4] Banti, loc cit.

The morbid anatomic process in the myocardium is consequently a cirrhosis and in view of its origin this may be said to be arterial.

The mechanism of disturbances of the compensation in the cases of mitral lesions differs from that just outlined as regards the aortic valves. The mitral lesions are oftener the result of an infectious endocarditis, the duration of the disease is usually shorter, and the compensation is hardly ever as complete as in the case of aortic disease, and disturbances in the compensation develop more readily and earlier. BANTI (*Centralblatt für Pathologische Anatomie und Allgemeine Pathologie*, Band VI, No. 14–15) has made the following interesting observations concerning the cause of the broken compensation in mitral valve lesions: when death occurred during the period of efficient compensation and was due to some intercurrent disease, BANTI found a pure hypertrophy of the heart muscle without any demonstrable microscopic lesions. When death supervened on account of embolism or the like, during an early attack of asystole, he found a marked dilatation of the coronary veins and their subepicardial branches which were filled with blood. Microscopically, the same changes were found in the intramyocardial venous branches, as well as in the capillary network that surrounds the individual muscle fibers. The intermuscular septa of fibrous tissue seemed to be made up of fibers that were separated from each other by a finely granular substance which was cleared up by acetic acid or potassic hydrat. In muscle cells there would be spherical or irregular vacuoles which contained a transparent substance that did not stain with osmic acid. These changes demonstrate conclusively a stasis in the coronary veins and an edema of the intermuscular connective tissue and the muscular fibers.

In cases that died after a condition of continuous asystole, or cardiac cachexia, BANTI found a constant dilatation of the coronary vein which occasionally was very marked. The opening into the right auricle would be very large and the *valvula thebesii* would form a semilunar fold that surrounded only a small portion of the orifice. The walls of the veins and of its subepicardial branches would be stiff, thick and whitish, resembling more the walls of arteries than of veins. Microscopically, this condition was found to be due to a sclerosis. Sometimes the muscular cells of the media would be entirely absent on account of the invasion of connective tissue. Surrounding the veins would be a ring of fibrous tissue of varying thickness. The intramyocardial veins would also be thickened and dilated. The intermuscular septa would consist of firm, coarse, broad, connective tissue bundles. Within the muscle bundles there would be dilatation of the capillaries and the individual fibers would be inclosed in a connective tissue ring. Thick connective tissue strands would pass out from the vein walls

and invade the adjacent muscle bundles. The arteries were, in the main, free from any changes.

The muscle fibers themselves showed extensive retrogressive changes, being at times the seat of a simple atrophy, at other times vacuolated or fatty. In some of the connective tissue masses the muscular tissue had disappeared completely, leaving sometimes heaps of pigment behind. In some places one could find zones of hyalin necrosis in the myocardium adjacent to markedly dilated veins. These changes were not evenly distributed, being most marked in the walls of the ventricles, less in the interventricular septum and still less marked in the auricles. The intensity of these changes was greatest in those individuals who had suffered from repeated attacks of asystole and in whom the final condition of cardiac weakness had lasted the longest.

It is quite clear that such changes belong to the cirrhoses and that the point of origin was in the venous walls. The morbid changes described can consequently be included under the name of venous cirrhoses in contradistinction to the arterial cirrhoses which develop in connection with lesions at the aortic valves.

How can the genesis of this venous cirrhosis be explained? The right ventricle has not sufficient reserve power and in consequence early attacks of asystole develop in mitral disease. During such an attack the circulation of the blood in the veins is hindered. The venæ cavæ can not empty themselves readily; stasis in the liver and kidneys, and edema come on. In addition to the caval veins, the coronary and small accessory coronary veins also empty into the right auricle and the coronary veins therefore meet with the same difficulties as the caval under these conditions and, consequently, a stasis develops in the myocardium as well as in the liver, kidneys and elsewhere. The anatomic changes found in the myocardium show this inference to be correct. Repeated stasis results in retrogressive changes in the muscle fibers and these lesions enfeeble contractility and renewed disturbances of compensation occur after slighter provocation. Finally, hyperplasia of the connective tissue ensues and the heart muscle at last is no longer able to perform its functions. There arises a *circulus vitiosus*, inasmuch as the lessened contractility increases the stasis in the changed heart muscle which on its side diminishes the power of contraction.

BANTI considers, as will have been observed, the mitral lesions as due to endocarditis, and the aortic lesions as due to atheroma. This is undoubtedly true in the majority of cases, but it can not be denied that there are aortic lesions of inflammatory nature, and mitral of atheromatous, and the myocardial changes that cause disturbances of compensation in such cases he does not attempt to discuss.

The essential outcome of BANTI'S investigation may be stated in this way,—that in aortic valvular lesions, due to an atheromatous process, the principal cause of the final disturbance of compensation is an arterial sclerosis of the myocardium, while in mitral lesions, due to endocarditis, compensation is disturbed and at last destroyed on account of a myocardial sclerosis of venous origin.

POPULATION AND LONGEVITY.

Some years ago, a prominent medical writer published an account of an ideal "City of Health," an assumedly impossible municipality in which all preventable causes of disease were avoided, and the death rate lowered to two or three in the thousand by faultless construction and organization and absolutely perfect sanitation. The article was widely quoted in the lay and medical press, and everywhere with approval, until a mathematician or an actuary ventured to figure on the possibilities and demonstrated that with such a death rate without a corresponding reduction in births, there would not, in a relatively very few years, be standing room for the population in such a community.

Man is a very prolific animal and the procreative instinct is one of the strongest in our nature; certainly this is so with what has been called in continental Europe, the proletariat, a class that includes mainly the improvident poor, and therefore a large proportion of the population of the great cities in this country, as well as abroad. Prudential considerations have little weight with this class of individuals, and were the death rate low and longevity the rule, the inconveniences of over-population would soon be manifest. As it is, the urban tendencies of this class and the consequent degeneracy (which properly signifies any tendency to race decay), may possibly save us from having to meet with the Malthusian problem in a severely practical form.

If the average of human life were 100 years, as it has been claimed it should be, and were perfect sanitation and the reign of universal peace, the ideal of philanthropists, to be realized, the near future would show an inconveniently over-populated world, unless some providential dispensation stepped in to give us elbow room or some social regulation were adopted, such as raising the marriageable age, ruling out all but the physically, morally and mentally best fitted from the privilege of procreation, or some other similar device. It is doubtful whether mankind would be any happier under such conditions, but they would be found indispensable in the social Utopias such as that of BELLAMY, were these ever realized. The rock of population is the one on which, as MR. BENJAMIN KIDD in "Social Evolution" says, all these social systems split; it is the problem of which their authors take no account. Over-population would work

its own cure through intensified human misery and degeneracy; possibly, as has repeatedly happened with the lower animals in localities, with the more or less complete extinction of the species.

While, however, one can thus even say a good word for human degeneracy, as perhaps on the whole a safety valve for populations collectively, it is individually an evil, and one that needs to be vigorously met. Man can not control evolution, and so far as he can be effective, he must use his efforts to combat obvious evils, and leave general results to work out themselves. There is therefore no excuse for lowering our sanitary ideals. The problems here suggested are not for immediate solution, and matters can be very much improved before unusual longevity and general perfection in health conditions render them at all practical. But they are perhaps worth considering, if it is only to temper a little our hygienic air castles and as a sort of consolation for our unavoidable sanitary failures.

"DRUGS MANY: REMEDIES FEW."

The current issue of *New Remedies* quotes this caption from the *Hospital* as being a succinct summary of the present pharmaceutic situation. Since 1880, "while two hundred remedies have been introduced, probably not more than twenty are in daily use." Twenty years ago the words "new remedies," designated botanic products introduced as newly discovered agents of extraordinary therapeutic value. Ten years later, synthetic chemistry, beginning with antipyrin (the first notable success) usurped the title. And now bacteriology is fast pushing the autocrat of the last decade into retirement.

If present activity in, and enthusiasm over, serums, antitoxins and extracts continue, and are justified by results, we may have to discard all our old materia medica before the end of this century. But on this point the *New Remedies* is not sanguine, its sympathies being somewhat closely identified with the products of the manufacturing chemist, although free to admit that these interests have been hurtfully overdone.

The therapeutic pendulum has swung, first away from botany, next away from chemistry and presently, it is predicted, the swing will be away from bacteriology. We note, in the foreign letter of the *American Practitioner* the following intimation, that our German confrères are disposed to swing back to botany.

"An important step is about to be taken by the Berlin Pharmaceutical Society, for the purpose of extending the world's knowledge of poisonous and healing plants. A central office is to be established for collecting and publishing reports from every quarter of the globe on the botanic, chemic, and pharmacologic discoveries in plants of a healing or poisonous nature. The Berlin Society does not intend merely to collect unknown facts, but hopes to encourage further inquiries in a field which has not yet been fully explored."

For the present, however, the German bacteriologists are said to be so fully occupied with their respective original researches, that they have no time or patience to expend upon students from abroad. Some ambitious students from this country have returned, not without disappointment at the scant attention they were able to obtain at some of the foreign laboratories, chiefly for the reason that the teachers are, for the time being, preoccupied with their own special investigations.

GENUINE DIPHTHERIA OF THE SKIN.

A few cases of genuine diphtheria of the skin have been described, in which the diagnosis rests upon the cultural and microscopic demonstration of LÖFFLER'S bacilli. BRUNNER[1] describes four cases of this unusual infection of the skin upon the fingers; NEISSER[2] found diphtheria bacilli in a membranous deposit near the anus; TREITEL[3] in an excoriated area near the external ear; VUCETIC[4] describes an extensive diphtheria of the skin of the neck in which the bacilli were demonstrated microscopically but not in cultures. FEER,[5] ESCHERICH[6] and TOWNSEND[7] describe genuine diphtheria of tracheotomy wounds. PARK[8] has recorded two cases of genuine diphtheria in finger wounds in physicians, the infection following tracheotomies, and WRIGHT[9] details seven instances of diphtheric infection in excoriations and exulcerations of the skin as, for instance, in connection with paronychia and mastoid abscess. ABEL[10] has also described diphtheria in a wound of the finger.

In addition to these cases of wound diphtheria of the fingers, recorded by BRUNNER, PARK and ABEL, a new case is added by ZAUFAL (*Prager medicinische Wochenschrift*, 1895). This case occurred in a child, 4½ years old, with fatal laryngeal and pharyngeal diphtheria. He succeeded in demonstrating in the microscopic sections, as well as in cultures, that LÖFFLER'S bacillus was present in an infiltration, 1 cm. square in size, situated upon the ulnar margin of the first phalanx of the right index finger. The center of this area was ulcerated and covered with a fibrinous deposit. The cultures of diphtheria bacilli obtained possessed a considerable degree of virulence as 1 ccm. of a two days' old bouillon culture killed a guinea pig, 300 grams in weight, forty hours after intraperitoneal injection. In addition to the diphtheria bacilli, the yellow pus coccus was isolated from the infiltration in the skin of the finger, and ZAUFAL regards the case as an instance of genuine wound

[1] Cited by Escherich, Etiologie und Pathogenese de epidermisch Diphtherie, Wien, 1894, 1. [2] Escherich, loc. cit. [3] Escherich, loc. cit. [4] Allg. Wr. Medic. Zeitg., XXXIX, No. 36. [5] Escherich, loc. cit. [6] loc. cit. [7] Welch, Bact. Investig. of Diphtheria in the United States, Am. Jour. of Medical Sciences, October, 1894. [8] Welch, loc. cit. [9] Welch, loc. cit. [10] Escherich, loc. cit.

diphtheria which was engrafted upon a scratch in the skin that had been infected with the staphylococcus pyogenes aureus.

MAJOR A. C. GIRARD.

MAJOR A. C. GIRARD, U. S. Army, who has been stationed at Fort Sheridan, Chicago, for the past four years, has been ordered to Fort Douglass, Salt Lake City, Utah. MAJOR GIRARD was given a farewell reception and a dinner by DR. F. B. TURCK and some of his medical friends in the city, who view his departure with regret.

The occasional contributions of MAJOR GIRARD which have appeared in these columns, not less than the one in this issue of the JOURNAL show him to be an accomplished surgeon, and one no less gifted with the pencil than the pen. Few of our profession are able to so skillfully illustrate their own articles.

The medical profession of Salt Lake will receive a notable addition to their ranks in the person of MAJOR GIRARD.

CORRESPONDENCE.

Association of American Medical Colleges.

CHICAGO, Oct. 9, 1895.

To the Editor:—The decision of the Judicial Council is asked upon the following propositions:

1. Is there any rule to prevent colleges, members of the Association, from admitting students in September, 1895, and allowing them to graduate, after taking three full courses of lectures, ending in 1898?

2. If such rule exists and is enforced, what will be done to those colleges, members of the Association, who violate the rules? Shall recognition be refused to diplomas issued to students in 1898 because they began the study of medicine in 1895?

3. Students A and B matriculate in 1895. A graduates in 1898; B in 1899. Are the two on equal footing according to the rules of the Association?

DECISION.

1. It is the judgment of the Council that there is no rule of the College Association preventing any of the members matriculating students in September, 1895, and allowing them to graduate after taking three full courses of lectures of six months each, in three separate years, ending in 1898.

2. The Council is now prepared to decide what should be done with colleges which violate any of the rules of the Association.

3. It is the judgment of the Council that A and B must be recognized as of equal respectability. Because the progressive advancement in methods of teaching, *pari passu* with the increasing demands for more lengthened collegiate instruction, must have a definitely stated date of beginning, and can not be made retroactive. If this rule could be made *ex post facto*, all the elder members of the profession might be rated as of inferior standing to those gentlemen who now graduate under our graded system of instruction, and are required to have attended more terms, and for a longer period of time than was formerly exacted.

Signed by,
DUDLEY S. REYNOLDS,
JULIAN J. CHISOLM,
STARLING LOVING,
JAMES H. ETHERIDGE,
ALBERT R. BAKER,
VICTOR C. VAUGHAN.

Attest: LILLIE B. BALDWIN, Clerk.
BAYARD HOLMES, Secretary.

Did Not Boom an Irregular Device.

CHAMBERSBURG, PA., Oct. 7, 1895.

To the Editor:—I send you by this mail, a reprint of my article on "Electricity," not so much on account of any merit it may possess, but to demonstrate to you how little your reporter understood what I was talking about when he wrote you the report of the proceedings of our State Society. He must have been a very serious man to fail to see that I was poking fun at "Electropoise," and write you that I said that *argon* was what was driven into the system, etc.

Look at the report, and then at the latter part of my article, and determine whether I was too ponderous at my fun, or he too dull of comprehension.

No serious harm has been done—the "Electropoise" men have not yet thanked me for my ad. through your JOURNAL, nor yet have they "gone for me" for my temerity in handling their pet instrument. Very truly yours,

GEO. S. HULL, M.D.

ASSOCIATION NEWS.

Section on Ophthalmology.—Report of the Secretary.

Place of meeting, gentlemen's reception room, Music Hall. Meeting called to order at 3:30 P.M., by the chairman, Edward Jackson, of Philadelphia, Pa., who delivered the Annual Address, "The Strength of the Different Mydriatics and Myoptics." At the close of the address a resolution was passed limiting time for reading of papers to ten minutes and discussion to five minutes for each speaker. A. R. Baker, of Cleveland, Ohio, read a paper on "Incipient Cataract," followed by J. E. Weeks, of New York, with "The Operative Treatment of Immature and Some Forms of Zonular Cataract."

The discussion on these papers was opened by Geo. E. Frothingham, of Detroit, Mich., followed by Herman Knapp, of New York; Joseph A. White, of Richmond; J. L. Thompson, of Indianapolis; Jas. A. Lydston, of Chicago; F. C. Hotz, of Chicago; S. D. Risley, of Philadelphia; A. J. Erwin, of Mansfield; Dudley S. Reynolds, of Louisville. Discussion was closed by J. E. Weeks, of New York.

The first of the papers on "Operations About the Eye" was read by M. W. Zimmermann, of Philadelphia, Pa.; on "Practical Points on Anesthesia for Operations about the Eye," Dr. Tyree, of Kansas City, and Eugene Smith, of Detroit, being absent, the next paper of the series was read by W. B. Johnson, of Paterson, N.J., on "Transplantation of Skin in Plastic Operations on the Eyelids." He was followed by F. C. Hotz, of Chicago, on "Skin Grafting in Ectropion and Entropion." The next paper was by Herman Knapp, of New York, on "Transplantation of a Strip of Skin into the Intermarginal Space of the Lids." The last of the series was by Herbert Harlan, of Baltimore, Md., on "Some Cases of Restoration of Eyelids with Exhibition of Patients." The discussion was opened by R. A. Reeve, of Toronto, followed by H. V. Würdemann, of Milwaukee; D. S. Reynolds, of Louisville; E. J. Bernstein, of Baltimore; Lucien Howe, of Buffalo; J. P. Worrell, of Terre Haute; P. D. Keyser, of Philadelphia; S. D. Risley, of Philadelphia; G. C. Savage, of Nashville; Frank Allport, of Minneapolis; Hiram Woods, of Baltimore; Herman Knapp, of New York, and M. W. Zimmerman, of Philadelphia. In the course of the discussion, patients were exhibited by Herbert Harlan and E. J. Bernstein.

WEDNESDAY, MAY 8—MORNING SESSION.

Meeting called to order at 9:10 A.M. By request the Chairman called for the report of the Committee on Legislation for the Prevention of Blindness which was presented

by the Chairman, Lucien Howe, of Buffalo, N.Y. On motion by Leartus Connor, seconded by H. M. Starkey, the thanks of the Section were tendered and the committee extended. L. Webster Fox read a paper on "Evisceration of the Eyeball," upon which the discussion was opened by S. D. Risley, of Philadelphia; followed by G. Oram Ring, of Philadelphia; F. C. Hotz, of Chicago; E. Oliver Belt, of Washington; H. Gifford, of Omaha; L. J. Lautenbach, of Philadelphia; R. C. Hodges, of Houston, and discussion closed by L. Webster Fox, of Philadelphia.

The next paper was by Geo. E. de Schweinitz, of Philadelphia, Pa., on "Histologic and Bacteriologic Notes on Some Cases of Penetrating Wounds of the Eyeball with Experimental Observations on Certain Bacilli found in a Case of Post-Suppurative Panophthalmitis," discussion of which was opened by R. L. Randolph, of Baltimore, followed by Harold Gifford, of Omaha.

The next paper was by Harry Friedenwald, of Baltimore, on "Hemorrhage into the Retina and Vitreous in young Persons, Associated with Evident Disease of the Retinal Blood Vessels—Remarks on the Formation of Vessels in the Vitreous in a Case of Immigrating Subhyaloid Hemorrhage"; followed by E. Oliver Belt, of Washington, D. C., on the "Prognostic Significance of Albuminuric Retinitis," and by J. T. Carpenter Jr., of Philadelphia, Pa., on "Extensive Colloid Changes in the Choroid with Report of Cases." Discussion opened by Geo. E. de Schweinitz, of Philadelphia; B. Alexander Randall, of Philadelphia; Harold Gifford, of Omaha; Herman Knapp, of New York, and J. T. Carpenter Jr., of Philadelphia.

WEDNESDAY, MAY 8—AFTERNOON SESSION.

Called to order at 3 P.M. The Nominating Committee reported as follows: for President, Lucien Howe, of Buffalo; for Secretary, Frank Allport, of Minneapolis. Upon motion of J. H. Thompson, seconded by G. C. Savage, it was resolved that the report of committee be accepted and the Secretary was instructed to cast the ballot electing the above-named officers. A series of papers then followed upon the "Ocular Muscles," the first of which was by Leartus Connor, of Detroit, Mich., "The Technique of Tenotomy of the Ocular Muscles"; Samuel Theobald, of Baltimore, Md., "The Slight Effects Sometimes Produced as the Results of Free Tenotomies of the Ocular Muscles for Heterophoria"; H. F. Hansell, of Philadelphia, Pa., "The Limitations of Tenotomies of the Ocular Muscles"; C. H. Thomas, of Philadelphia, Pa., "Tendon Advancement with a Special Indication for its Employment"; G. C. Savage, of Nashville, Tenn., "The Indications for Advantages and Technique of Muscle Shortening." Geo. T. Stevens, of New York, opened the discussion by reading a carefully prepared paper followed by S. D. Risley, of Philadelphia; A. J. Erwin, of Mansfield; Samuel Theobald, of Baltimore; Herman Knapp, of New York; F. C. Hotz, of Chicago; G. Hermon Thomas, of Philadelphia; G. Edgar Dean, of Scranton; Frank Allport, of Minneapolis; Leartus Connor, of Detroit; G. C. Savage, of Nashville; G. T. Stevens, of New York. C. M. Hobby being absent, the next papers were by Hiram Woods, of Baltimore, "To What Extent Should Recently Suggested Methods of Muscular Exercise Displace Tenotomy in the Treatment of Heterophoria." J. W. Park, of Harrisburg, Pa., on "Practical Points Gained in the Treatment of 1,000 Cases of Insufficiency of the Ocular Muscles"; E. J. Bernstein, of Baltimore, Md., "Some Remarks on Paralysis of the Superior Rectus Muscle"; followed by G. M. Gould, of Philadelphia, Pa., on "Some Findings Concerning Muscle Imbalance and its Treatment." The discussion was opened by Leartus Connor, of Detroit; followed by G. C. Savage, of Nashville; G. H. Price, of Nashville; Geo. S. Hull, of Chambersburg; R. A. Reeve, of Toronto; G. Edgar Dean, of Scranton; Hiram Woods, of Baltimore; J. W. Park, of Harrisburg, and E. J. Bernstein, of Baltimore. Henry Gradle, of Chicago, was absent but his paper on "Hysterical Insufficiency of Convergence," being in the hands of the Secretary was read by title.

THURSDAY, MAY 9—MORNING SESSION.

Meeting called to order at 9:15 A.M. The first paper read was by J. A. Lydston, of Chicago, Ill., "The Relationship Between the Eye and Brain." Next paper was by S. C. Ayres, of Cincinnati, Ohio, on "Lymphangeoma Cavernosum of the Orbit." Dr. Ayres being absent, and his paper in the hands of the Secretary, it was read by title. P. D. Keyser and C. A. Oliver being absent, a paper by Flavel B. Tiffany, of Kansas City, Mo., on "Ectopia Lentis," was read. This was discussed by J. L. Thompson, of Indianapolis; A. R. Baker, of Cleveland; Harold Gifford, of Omaha; F. C. Hotz, of Chicago; B. A. Randall, of Philadelphia; Herbert Harlan, of Baltimore; S. L. Ziegler, of Philadelphia; J. A. Lydston, of Chicago; R. C. Hodges, of Houston, and closed by Flavel B. Tiffany, of Kansas City.

P. D. Keyser, of Philadelphia, Pa., then read a paper on "A Case of Enchondroma of the Cartilage of the Upper Lid," which was discussed by F. C. Hotz, of Chicago; J. L. Thompson, of Indianapolis; S. L. Ziegler, of Philadelphia, and closed by P. D. Keyser.

The paper of W. H. Wilder, of Chicago, on "Formalin as a Preservative Agent for Eye Specimens," was, in the absence of the author, read by title. Dr. F. C. Hotz exhibited the specimens, and made explanatory remarks. He was followed by H. V. Würdemann, of Milwaukee; H. M. Starkey, of Chicago; E. J. Bernstein, of Baltimore, and Geo. E. de Schweinitz, of Philadelphia.

The next paper was by H. V. Würdemann, of Milwaukee, on "The Infiltration Method of Anesthesia in Ophthalmic Practice," with demonstration. This was discussed by Gilbert E. Seaman, of Milwaukee; Geo. E. de Schweinitz, of Philadelphia; G. Edgar Dean, of Scranton; J. C. Dunlevy, of Sioux City; Flavel B. Tiffany, of Kansas City; A. C. Corr, of Carlinville, Ill., and closed by H. V. Würdemann. The technique of the injection was shown upon the arm of one of the ophthalmologists present, and a patient was introduced by Harry Friedenwald, of Baltimore, with sebaceous cysts on the forehead who was operated on under anesthesia by this method for purpose of demonstration.

THURSDAY, MAY 9—AFTERNOON SESSION.

Meeting called to order at 3:15 P.M. B. Alex. Randall, of Philadelphia, presented the Report of the Committee on the Examination and Care of the Eyes during School Life. After reading the report, Dr. Randall read a paper on "The Importance of Noting Slight Choroiditic Changes, especially Conus." These were discussed by P. A. Callan, of New York; S. D. Risley, of Philadelphia; A. J. Erwin, of Mansfield; Frank Allport, of Minneapolis; Frank Fisher, of Philadelphia; R. A. Reeve, of Toronto; Dunbar Roy, of Atlanta; G. H. Price, of Nashville; Lucien Howe, of Buffalo; L. B. Ryan, of Galesburg; Leartus Connor, of Detroit; G. Edgar Dean, of Scranton; J. L. Thompson, of Indianapolis, and closed by B. Alex. Randall.

Dr. Mittendorf being absent, the next paper was read by H. Bert Ellis, of Los Angeles, Cal., "A Study of the Refraction of 1,000 Eyes." Dr. Southard, of San Francisco, being absent, this was followed by S. D. Risley, of Philadelphia, on "The Percentage of Symmetrical and Asymmetrical Meridians of the Cornea in Astigmatic Eyes." Dr. H. M. Starkey followed with "Latent Astigmatism"; L. J. Lautenbach, of Philadelphia, on "The General and Local Conditions that change Corneal Curvature." Discussion by Frank Fisher, of Philadelphia; Edward Jackson, of Philadelphia; A. C. Corr, of Carlinville, Ill.; P. A. Callan, of New York; H. M. Starkey, of Chicago, and L. J. Lautenbach, of Philadelphia

The Executive Committee reported the subject for collective study by special committee for the next year, "Detachment of the Retina, its Etiology and Treatment.' They further suggested to the Section as a topic for study and presentation, "Cases of Optic Nerve Atrophy of Obscure Origin." The chairman appointed on the first committee: R. L. Randolph, Chairman, 211 W. Madison Avenue, Baltimore, Md.; F. C. Hotz, 36 Washington Street, Chicago; E. E. Holt, 723 Congress Street, Portland, Maine; J. E. Weeks, 46 East 31st Street, New York; T. E. Murrell, 6th and Olive Streets, St. Louis, Mo.

On the second committee: H. V. Würdemann, chairman, 805 Grand Ave., Milwaukee; G. E. de Schweinitz, 1401 Locust Street, Philadelphia; H. Friedenwald, 922 Madison Avenue, Baltimore, Md.; C. W. Kollock, Charleston, S.C.; G. Dunbar Roy, 56½ Whitehall Street, Atlanta, Ga.

FRIDAY, MAY 10—MORNING SESSION.

Meeting called to order at 9:30 P.M. The only remaining paper of the program not having been read, whose author was present, was by A. C. Corr, of Carlinville, Ill., on "Anomalies in Ophthalmic Practice." Discussion by J. L. Thompson, of Indianapolis; H. V. Würdemann, of Milwaukee; R. L. Randall, of Baltimore, and closed by A. C. Corr, of Carlinville.

This completed the list of papers. The chairman congratulated the Section on the scientific work of the meeting, and especially as it was the largest gathering of ophthalmologists ever held in this country (one hundred and six having registered). The Section then adjourned to meet the following year.

H. V. WÜRDEMANN, Secretary.

SOCIETY NEWS.

The American Association of Gynecologists and Obstetricians.—Dr. Franklin H. Martin delivered the following toast at the annual banquet of this Association:

Mr. President:—The name, birth, policy and success of your society possess inspiration for as many toasts. Its name reminds us of American gynecology. Its time of birth coincides very closely with the new birth of medicine. Its policy—genuine scientific work for our specialty—broad as our country in its membership, democratic as our republic in its constitution, commands respect. Its success so remarkable that those once its opponents halt and applaud, is only accounted for by its magnificent and representative membership. As President of the Chicago Gynecological Society, in a position to speak officially for the gynecologists of Chicago, I voice their sentiments when I say we are proud to have you honor our city with your presence. You honored your society by calling it American. In no place in America does the eagle scream louder or in more unmistakable tones than right here in Chicago.

Your society came into existence with the new birth in surgery; when surgery as a science began to predominate, and surgery as an art began to recede. In other words, with the renaissance of medicine. Moss-covered and absolute traditions you left behind. You got away from narrow provincialism and crossed the Alleghanies, the Rockies, and even annihilated the imaginary Canadian line which hitherto divided the Americans of the North from those of the South. In this, as Chicagoans, we appreciate you and embrace you.

Old foggyism was in its death throes before Chicago become a city. In medicine and surgery *we* are *all* renaissance. We have a code in Chicago broad enough even for your honorable secretary, which is indelibly impressed upon every one of our memories. It is: "Do unto others as you would that they should do to you, and the Lord help him who doesn't."

We know of but one country and, like you, we annex all competitors, and naturalize all foreigners. Like you, without prejudice we take that which is good from all lands, and without regard to traditions we reject that which is useless, and that which we finally possess is indelibly stamped with the American eagle and henceforth becomes our own.

It is such societies as yours, Mr. President, which will make us more and more proud of that name—American—which will reiterate the fact every year with abundant proof of its truth, that American gynecology and abdominal surgery has from the beginning of modern medicine led the world.

We must not forget, nor allow the fact to become obscured that anesthetics, without which gynecology would be impossible, were discovered and employed first by Morton of Boston.

We must not forget, nor allow foreign authors to forget, that the first ovariotomy was performed by Ephraim McDowell.

We must not forget nor fail to honor the fact that Gilman Kimball of Boston, proposed and executed the first abdominal hysterectomy for fibroids.

We must not forget that modern plastic gynecologic surgery was founded by Marion Sims.

We must not forget nor allow the fact to become obscured in literature, that the first modern vaginal hysterectomy was performed by Lane of San Francisco.

We can not forget, nor should we, that the removal of the uterine appendages for the establishment of an artificial menopause was deliberately planned and executed by Robert Battey, coincidently with, but independently of two other great surgeons.

And finally, gentlemen, we have not forgotten nor will it be forgotten as long as abdominal surgery has a history, that the principles of modern intestinal surgery were founded by Nicholas Senn.

Gentlemen, for a young nation have we not the right to be proud of our achievements? Is there another nation, old or young, which can show so long a list of practical works which have been adopted as the most important legitimate life-saving procedures by the whole world? Take from gynecology and abdominal surgery those procedures initiated by Americans and our specialty would have no existence.

So, Mr. Chairman, we extend to you a Chicago welcome. The important work your society is doing can not help but maintain our specialty in the front rank of the medicine of the world.

And finally, let us as American gynecologists, in whatever society we work, cultivate a scientific conscience, so that we may interpret aright. Cultivate a laudable ambition so that we may work with enthusiasm—and most of all cultivate *patriotism* so that American achievements will have their full importance in our hearts.

Chicago Ophthalmological and Otological Society.—Regular meeting held May 14, 1895, at 155 Dearborn Street.[1] There were ten members and visitors in attendance. Dr. Hotz in chair.

The minutes of the last meeting were read and approved.

Drs. W. R. Fringer and A. B. Hale were elected members.

Dr. Wilder said that the case of paresis of extrinsic muscles, reported by Dr. Gradle, was now improving under potass. iodid.

Dr. Coleman reported a case of gumma of the sclera. Woman, 26, whose symptoms began early in winter. V. O. S. =20-200; marked conjunctival injection; iris discolored; no pupillary reaction; a gumma-like infiltration at upper and outer sclero-corneal margin extending into cornea. With atropin and potass. iodid no improvement took place and subconjunctival injections of corrosive sublimate were used. Under this treatment a cure rapidly took place.

Also a case of hemiopia. Woman, 37, confined last November; was unconscious for six weeks; fundus shows no retinitis; left homonymous hemiopia extending through macula; color fields for red and green much diminished; V. each eye 20-20; pupillary reaction slightly subnormal. Dr. Tilley thinks that such cases are due to a toxic agent, chiefly syphilis. He had a case very similar.

Dr. Tilley had a case of diplopia above and below horizontal line which disappeared in ten days. Patient had a tooth pulled a few days before and piece of jaw was broken off. Dr. Wood reported case and showed sections of intra-ocular tumor. Patient was over 40. No irritation, only slight increase of tension. Nature of tumor rather obscure but probably glio-sarcoma.

Dr. Wilder thought it was a sarcoma.

Dr. Wood showed a combined red and blue gelatin mask for use before an electric furnace.

Dr. Hotz gave a short account of the proceedings of the Ophthalmological Section at Baltimore.

On motion the Society adjourned.

103 State Street. C. P. PINCKARD, Secretary.

NECROLOGY.

JOHN S. YOUNG, M.D., of Brooklyn, died September 23, aged 63 years. The cause of his decease was general peritonitis, lasting four days, supervening upon malignant disease of the gastro-hepatic omentum of a prolonged duration. Dr. Young was born in Brooklyn, educated at Fordham College, and a graduate from the College of Physicians and Surgeons, New York, in the class of 1854. He was for eight years connected with the Department of Health, as register of vital statistics or deputy commissioner, from which department his connection was severed about a year and a half ago. He was forty years closely identified with, and served as secretary for, the Kings County Medical Society nearly ten years. He also served that society in the capacity of vice-president. He was a member of the consulting staff of St. Mary's Maternity, and a member of several important social organizations. Dr. Young came of a family of physicians, several of his immediate progenitors having engaged in the practice of medicine. He leaves a widow and three sons, the eldest of them being a physician.

W. S. YOUNGBLOOD, M.D., of Groveton, Texas, October 6.——D. B. Williams, M.D., of Louisville, October 6, aged 62.——George W. Stoddard, M.D., of Ramsey, Ill., October 11, aged 33.——T. M. Fettermann, M.D., of San Antonio, Texas, October 6, aged 53.

[1] Received at the JOURNAL office, Oct. 12, 1895.

PUBLIC HEALTH.

Advice to Bicyclists.—Rocheblave gives to bicyclists the following good advice from a medical standpoint: 1, no one should ride until after an examination by a physician. This examination should be made both before and after a walk or run, for some cardiac lesions only manifest themselves after a state of fatigue. 2, ride no faster than 12 kilometers an hour. 3, as far as possible guard against the desire to ride any faster. It is very difficult not to give way to the "delirium of swiftness." With a light machine on a good road an amateur may easily make 25 kilometers an hour. This is too much, for the pulse is increased to 150, even at 14 and 16 kilometers per hour.[1]

Michigan State Board of Health.—The State Board of Health met in regular meeting, at Lansing, at 10:30 A.M., Friday, October 11. Hon. Frank Wells, president. Hon. A. V. McAlvay, Prof. Delos Fall, Dr. Samuel G. Milner, Dr. George H. Granger, and Secretary Henry B. Baker were present. The regular business of auditing the bills and accounts was transacted. Dr. Milner, of Grand Rapids, offered the following resolutions, which were adopted by the board:

Resolved, That hereafter the appointment of clerks in this department shall be in accordance with the principles of civil service, the service being classified if necessary, and appointments being made in each class by promotion for merit and length of service, or by examination, salaries to be graded according to class and term of service.

Resolved, That the President, Secretary and one other member appointed by the President, constitute a committee who shall present the details of a plan in accord with the principles above stated.

Dr. Milner was appointed the other member of the committee. Dr. Cattermole was granted a leave of absence until April, 1896. One other clerk has gone to the University. This made two vacancies in the office, and Mr. Thomas S. Ainge, of Detroit, and Sheldon B. Young, of Lapeer County, were appointed to clerkships in the office.

The Secretary presented the subject of reprinting some of the educational pamphlets which the office endeavors to distribute to the family and the neighbors of the person sick with a dangerous disease. Several members stated that they believed these pamphlets and leaflets were of great benefit in the education of the people; just how to restrict and prevent each of the dangerous diseases. The board were unanimously of opinion that these pamphlets of instructions should be reprinted in sufficient numbers to distribute wherever a communicable disease exists throughout the State. The board authorized the Secretary to print 20,000 copies of the pamphlet relating to the restriction and prevention of diphtheria; 10,000 of the one relating to the restriction of consumption, and 10,000 of the leaflet relating to the restriction of typhoid fever. The Secretary was directed to ascertain the best way to have the revised leaflets relative to diphtheria, typhoid fever and consumption translated for publication in the German and Holland languages.

Secretary Baker presented a statement of the smallpox and typhoid fever in Michigan during the past quarter, and the present outlook for those diseases. The Secretary's quarterly report of work in the office showed that more than the usual amount of work and considerable new and valuable work had been done. One of the most important lines of new work was in connection with a "blue letter" (official demand for reports, transmitting publications, giving information, etc.) and with a final report to be used in collecting information tending to show the results of efforts for the restriction of consumption. It is hoped that in consequence of these papers much valuable information will be received at the office of the Secretary.

New work had also been done on a "final report" blank to be used in collecting information regarding the results of efforts in the restriction and prevention of smallpox in Michigan. It is hoped that, through this series of questions, much valuable information will be received.

An interesting letter from the Health Officer of Kalamazoo, was presented and read. The letter is of special interest because it shows that Michigan is not behind in the most advanced public health work; it read as follows: "In our present epidemic of diphtheria, which is clinically of a milder type than I have ever seen before, bacteriologic examination by a competent bacteriologist, who is paid by the city, is made in every doubtful case, especially so in the beginning when a strict diagnosis is hard to be made. In the larger proportion of cases, antitoxin treatment has been used with good result. To people who are unable to stand the expense, the city furnishes the antitoxin and the operator free of charge."

Secretary Baker presented reports from a few other cites, not in Michigan, generally favorable to the use of antitoxin for diphtheria, and relative to the bacteriologic examinations; one report was from Rochester, N. Y., which stated that through the bacteriologic tests, "many mild cases of diphtheria have been discovered which were formerly determined to be sore throat," and whereas such cases were formerly allowed to continue to spread diphtheria, they are now being restricted.

A plan was presented for obtaining, through reports from health officers, a sectional township map of Michigan, exhibiting the residences of consumptives, for use in studying the parts of the State where the disease is most prevalent, also for a study of the extent to which infected houses spread the disease, and the effects of disinfection of such houses. Such permanent records may throw light on the origin of future cases of consumption in the same townships.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Illinois: Chicago, September 1 to 30, 2 deaths.
Louisiana: New Orleans, October 10, 30 cases.
Michigan: September 28 to October 5, smallpox reported at Battle Creek, Bedford Township and Detroit.
New York: New York, October 5 to 12, 1 case.

SMALLPOX—FOREIGN.

Mauronillo (Cuba): August 1 to 31, 11 deaths.
Santos: September 7 to 14, 2 cases.
Wigan (Eng.): June 1 to October 1, 48 cases.
London (Eng.): September 21 to 28, 2 deaths.
Dublin: September 21 to 28, 2 cases, 2 deaths.
Madrid: September 20 to 27, 6 deaths.
Moscow: September 7 to 14, 1 case.
Nogales: September 28 to October 5, 1 case.
Prague: September 14 to 21, 4 cases.
Rotterdam: September 21 to 28, 3 cases.
St. Petersburg: September 7 to 14, 2 cases, 2 deaths.
Tuxpan: September 21 to 28, 2 deaths.
Warsaw: September 7 to 14, 1 death.

CHOLERA.

Hiogo: August 16 to 29, 1,266 cases, 927 deaths.
Osaka: August 16 to 29, 1,361 cases, 1,101 deaths.
Honolulu: August 9 to September 8, 58 cases, 44 deaths.
Singapore: August 19 to September 2, 22 cases, 11 deaths.
Tarnopol: September 10 to 15, 13 cases, 3 deaths.
Tarnopol Des't: September 11 to 15, 2 cases, 1 death.
Zbaraz: September 6 to 14, 2 cases, 1 death.
Proskurow and Letelschew Districts: August 21 to 31, 101 cases, 45 deaths.
Constantinople: September 10 to 20, cholera reported.
Mossoul: September 14, cholera reported.
Morocco; September 14, 11 cases, 12 deaths.
Bombay: September 3 to 10, 1 death.
Cognac: September 21 to 28, 1 death.
Yokohama: August 23 to September 6, 27 cases, 19 deaths.
Nagasaki: September 4 to 10, 20 cases, 16 deaths.

YELLOW FEVER.

Mauronillo: August 1 to 31, 23 deaths.
Acapulco: September 14 to 21, 1 case, 1 death.
San Juan, P. R.: September 1 to 21, 22 cases, 6 deaths.
Santiago de Cuba: September 21 to 28, 19 deaths.
Vera Cruz: September 26 to October 3, 4 deaths.

[1] L'Union Medicale, 1895, No. 32.

MISCELLANY.

Treatment of Typhoid Fever.—Dr. John Eliot Woodbridge, whose articles on typhoid fever have frequently appeared in the columns of the JOURNAL, has been in Chicago for the past two weeks, treating cases of typhoid fever in the hospitals of Chicago, and superintending the issue of his new book on the "Treatment of Typhoid Fever" which is now passing through the press.

Exemption from Taxation of Farms used for Hospital Purposes.—Farms bought and used for hospital purposes, as a part of the hospital plant, an open air sanitarium, and roaming ground for manageable and convalescent patients, very much as a playground might be used as an aid in the cure of sick children, the Supreme Court of Pennsylvania holds, in the case of Contributors to Pennsylvania Hospital v. Delaware County, decided July 18, 1895, are exempt from taxation. That they are also farmed for profit to reduce expenses, the court maintains, does not vary their position as part of the plant, though if there were any fair doubt of the good faith of such use, the case would be different. Property which is not used directly for the purposes and in the operation of the charity, but for profit, is not exempt; and the devotion of the profit to the support of the charity will not alter the result. It is, however, not material that such farms are separated from the main hospital building, and not used with it, nor that their use for hospital purposes is limited to the months of pleasant weather, in the summer and autumn.

Successful Ligature of the Innominate Artery.—A man was recently on exhibition in London whose innominate artery was tied by Mr. Coppinger, at the Mater Misericordiæ Hospital in Dublin, in January, 1893. The operation was for the relif of aneurysm of the subclavian artery. He was exhibited shortly after the operation in Dublin and later at Newcastle-on-Tyne. The man is 59 years of age and is in excellent health. It is claimed for him that he is the only living example as yet exhibited in Europe of cure of subclavian aneurysm by innominate ligature.—*N. Y. Med. Record.*

There is one case to our knowledge walking the streets of St. Louis in perfect health whose innominate artery was successfully ligated in 1892 by Prof. Waldo Briggs, of the St. Louis College of Physicians and Surgeons.—*St. Louis Clinique.*

Concerning the Action of the Diphtheria Antitoxin on the Kidneys and on the Heart.—C. V. Kahlden (*Centralbl. für Allg. Path. u. Path. Anat.* Band VI, Nos. 3 and 4) made the following experiments in order to determine whether or not the diphtheria antitoxin has any special effect upon the heart or upon the kidneys. He injected guinea pigs and rabbits with very large quantities of serum as compared with the body weight of the animals and then after one or more injections the animals were killed and the kidneys and the heart muscle examined microscopically, after fixing and hardening according to the most approved methods. There were no changes of any kind to be found, either in the kidneys or in the heart muscle. V. Kahlden is not prepared to say from the results of these experiments that the serum might not aggravate the morbid process often present in the kidneys of human diphtheric patients as the result of the elimination of the toxic products of the diphtheria bacillus, but direct anatomic evidence of such an effect is still lacking.

All Massachusetts Cities Must Have Boards of Health.—The former Massachusetts statute providing that in each city, except Boston, in which a majority of the voters shall have so voted according to law, there shall be a board of health, consisting of the city physician and two persons, not members of the city council, whose term of office shall be two years, has been superseded by a new enactment which provides that in each city, except Boston, there shall be appointed by the mayor, subject to confirmation or rejection by the board of aldermen, except where other provision is made in the city charter, a board of health, consisting of three members, who shall hold office for the term of three years, one of whom shall be a doctor of medicine.

Liability of Boards of Trustees in North Dakota.—A law has been passed in North Dakota making any board of trustees, commissioners, directors, person or persons having the control or management of public institutions of the State, or having in any manner whatsoever the responsibility of disbursing or expending any money appropriated by the State, who, either directly or indirectly, expend or agree to expend, for the benefit of any institution or purpose, any amount in excess of the sum appropriated therefor, or who uses or transfers any appropriation to another purpose, conjointly and individually liable for all amounts so used or transferred, and forfeits his or their offices. However, when an emergency arises requiring it, the Governor, Secretary of State and State Auditor may be appealed to, as a commission with power to authorize the transfer of money from one fund to another fund, of the same institution or purpose, or to authorize money therefor to be drawn from the State treasury. Much the same end is sought to be reached in South Dakota by a somewhat different law.

Changes Involving Massachusetts Town Boards of Health.—Chapter 506, of the Acts of 1895, provides that every town in the commonwealth of Massachusetts may elect a board of health by ballot at the annual meeting of the town, or at a meeting legally warned for the purpose, consisting of three persons, to serve, one for the term of three years, one for the term of two years and one for the term of one year, beginning with the day following such town meeting or until their respective successors are chosen and qualified; and thereafter such town shall, at its annual town meeting, choose in the same manner one person who shall hold office for three years from the day following such town meeting or until another is chosen and qualified in his stead. If no such board is chosen, the selectmen shall constitute such board of health. So much of the Act of 1894 as provides that one member of the board of health shall be a physician, shall not apply to towns in which the selectmen constitute the board of health. Those persons chosen by ballot and declared elected as members of the board of health of any town at its annual, or any special, town meeting prior to the passage of this Act, shall constitute the legal board of said town, notwithstanding any informalities or defects in the proceedings.

Larvated Tuberculosis of the Tonsils.—Dieulafoy (*La Semaine Medicale*, 1895, p. 199) injected pieces of human tonsils into guinea pigs. Of sixty-one animals so treated, eight became tuberculous, *i. e.*, 13 per cent. Of thirty-five animals inoculated with adenoid masses from the tonsils, seven became tuberculous, *i. e.*, 20 per cent. From these results the author concludes that the various tonsils are the place of entrance for the tubercle bacilli in a considerable number of instances, and that the tuberculosis gradually spreads to the lymphatic vessels, the glands of the neck and then to the lungs. In order that tubercle bacilli may lodge in the tissue of the tonsils only a small lesion of the epithelium would be necessary, and such lesions are certainly present often enough.

Fat Embolism after Forcible Flexion of Both Knee-Joints.—F. Colley (*Dtsche. Zeitschrift f. Chir.*, Bd. 36) describes a very unique case of extensive fat embolism following *brisement forcé* of both knee joints without injury to the bones. The patient, a 24-year-old girl, died twenty-four hours after the operation. The fat embolism was very marked in the lungs, the brain, the kidneys, and especially in the heart muscle In the heart there was a focal fatty degeneration of the muscular fibers around the capillaries that were filled with fat. This myocardial degeneration undoubtedly played a principal part in bringing about the fatal termination. The source of the fat embolism was, undoubtedly, the markedly fatty vasti muscles of the thigh, which were lacerated during the operation.

"Malignant" Lymphoma.—Fischer (*Deutsche Zeitschrift f. Chirurgie*, Bd. 36) describes two cases of malignant lymphoma with the post-mortem findings. In the first case there

were lymphomatous formations in the internal organs, but no tuberculosis or suppuration. Clinically, this case was marked by periodic attacks of fever lasting ten to twenty-one days with free intervals of about the same length. Fischer showed that this fever depended on infection with the staphylococcus pyogenes which was present in the blood and the lymphatic gland juice during the period of pyrexia, but absent in the intervals of normal temperature. Post-mortem, no microörganisms were found in the glands. In the second case there was an extensive lymphomatous growth in the neck, in the axillæ and in the inguinal regions with tuberculous ulcers of the intestine, tuberculosis of the bronchial glands and of the lungs, but the cervical lymph glands showed no bacilli, and no histologic changes characteristic of tuberculosis. Inoculation with pieces of the gland into the peritoneal cavity of pigs was not followed by the development of tuberculosis and, consequently, Fischer regards the tuberculous lesions in this case as the result of an infection independent of the lymphoma.

Football Casualties.—A serious casualty has already been reported as a file-leader for the series of football accidents in the season of 1895–96. An animated contest on a New Jersey field resulted in the laying-up of a junior player. He was tripped while running, and was fallen upon heavily by a number of other players; his ankle and two or three ribs were fractured. His ultimate recovery is expected. A dislocation of the femur was treated in Professor Hamilton's clinic, Chicago, October 12. The patient belonged to the team of one of the high schools on the West Side. A press dispatch reports the death of a football player from an accident received while playing at a western college.

The Index Medicus.—The following circular has been issued:

PHILADELPHIA, Oct. 1, 1895.

Dear Doctor:—The *Index Medicus*, as you doubtless know, has ceased to exist, because the number of subscribers was not sufficient to pay for its publication. Its value was so great that the undersigned, a self-constituted committee, have concluded to appeal to the literary workers of the medical profession to unite in reviving it. The nature of the *Index* is such that it can never obtain a large subscription list, but it is invaluable to those engaged in literary research. It will require about $5,000 annually to publish it. The former editors are willing to take up the work again if 200 subscribers at $25 per year can be obtained. We have each agreed to subscribe for a period of five years; will you not do likewise, and mail accompanying blank, duly signed, to the Secretary of the Committee? If the term seems too long, will you not fill in the blank for three or less years? The Committee also begs you to get as many of your friends as possible to subscribe, and to send to the Secretary the names of any persons, society or library likely to become a subscriber. Yours truly,

WILLIAM PEPPER, J. WM. WHITE,
S. WEIR MITCHELL, W. W. KEEN,
H. A. HARE, GEO. M. GOULD,
DEF. WILLARD, JOHN H. PACKARD,
J. C. WILSON, E. LAPLACE,
H. C. WOOD,

1627 Walnut Street. JOHN B. ROBERTS, Secretary.

Influence of Season on Insanity.—Dr. Forbes Winslow has furnished the New York *World* a popular article on insanity in women, in the course of which he discusses "the influence which the seasons exert in producing insanity in females." Analyzing the statistics of a large hospital for a period of twenty-two years, during which a total of nearly 5,000 patients—2,955 females and 2,019 males—were treated, it is shown that during the first quarter of the year—the months of January, February and March—the number of females received amounted to 649. In the second quarter of the year—April, May and June—842 were admitted. In the third quarter—July, August and September—798 was the number, and in the last quarter—October, November and December—the admission of insane women amounted to 668. It is seen, therefore, that a much larger number of insane women were admitted during the second and third quarters—in spring and summer—than in any other period of the year. On the other hand, most cures were effected in the fourth quarter, while most deaths occurred in the first quarter of the year. On an analysis of each month taken individually, the greatest number of female curable lunatics were admitted in May and the smallest in January. Less females were discharged cured during the early part of the year than in any other part of it, and most deaths occurred in the months of January, February and March, and the least in April, May and June. From these data Dr. Winslow says: "We may rationally conclude that, as the temperature of the weather diminishes and the year draws to a close, so may we form a more favorable opinion respecting the prognosis in cases of insanity in women. On the other hand, seeing that insanity is so much more prevalent in summer than in winter, every exciting cause, whether physical or moral, ought to be carefully guarded against in the former season, especially in those women who are in any way liable to, or in whom has been developed any previous attack."

The Allen Medical Library.—In answer to a correspondent, we have to say that books and pamphlets intended for the Allen Medical Library should be sent in care of the Presbyterian Hospital, Chicago.

The library was donated about ten years since by the late Prof. J. Adams Allen, of Rush Medical College, and the Superintendent, Dr. Stehman, was designated as the Librarian. It has by reason of the additions to the original collection, grown to be a fairly comprehensive medical library, and is of considerable value. No printed catalogue has been issued.

Suppression of Urine After Operation—Saline Injection—Recovery.—Dr. Charles McBurney has reported to the New York Surgical Society a case of the above nature that was successfully treated by saline infusion. This case has been published in the August issue of the *Annals of Surgery*. The operation was for the removal of a large calculus from the right kidney, in a male patient aged 50 years. The saline infusion that appeared to reëstablish the renal function was in quantity about one quart, and was injected into a vein in the arm. The following is a part of the report: "The operation of the kidney was attended with only moderate bleeding; no ligature and no packing was required for its control. In the course of the twenty-four hours next following the operation nausea began, and was soon followed by vomiting, headache, and symptoms of uremic intoxication. There was no voluntary discharge of urine, and only one-half ounce was obtained by catheter during the first twenty-four hours after the operation. The saline infusion, above referred to, was followed in the course of a few hours by the discharge of thirty-five ounces of urine. The patient thereafter steadily recovered. In the discussion of this case that followed, reference was made to a case of total suppression of urine after an operation for gangrenous hernia, in which striking improvement had followed similar treatment. It was also called to mind that Dr. Howship Dickinson had in the *British Medical Journal* called attention to the fact that patients could be aroused from diabetic coma in a few minutes by saline infusion.

Some Centenarians and Others.—Dr. Charles E. Rice, of Alliance, Ohio, held his second annual old folks' reception at his residence in that city on the 27th ult., at which were four centenarians—all women, by the way—and some eighty other guests whose ages ranged from 72 to 103 years. Mrs. Elizabeth Byers, aged 103, drove twenty-four miles in a buggy to attend the party, and brought and used the spinning-wheel that she has owned for eighty years. Mrs. Priscilla Spooner, the next in wealth of years, was born in Duxbury, Mass., Dec. 11, 1793, the daughter of Capt. Judah Delano. Mrs. Catherine Hoobler, born in Loudon County, Va., in 1794, is the great-great-grand aunt of Dr. Rice. Mrs. Letitia L. Walker was born near Shippensburg, Pa., in 1795. There were also present among the women one each aged 97, 95, 94

91, 88, 87, 84 and 83 years, and two each aged 89 and 86 years. The oldest man was 99, and there were one each aged 96, 94, 93, 91, 88, 87, 86, 84 and 82 years, two aged 92 years and three aged 90 years each. The aggregate ages of the sixteen women—83 to 103 years—was 1,475 years, being an average of 92.2 years each; the aggregate ages of the fifteen men—82 to 99—was 1,354 years, being an average of 90.3 years each Obviously the New Woman is not enjoying a monopoly of superiority over masculinity. Elizabeth and William Ware, aged respectively 91 and 90 years, have been married more than sixty years and were the oldest married couple present, and the oldest physicians were Drs. Josiah Beebout, 92, and John P. Gruwell, 86 years. The oldest soldier was James R. Green, born in Bolton, England, in 1796, who addressed the students of Mount Union College in his ninety-ninth year, on the 18th of June last, the eightieth anniversary of the battle of Waterloo, in which he participated. Mrs. Nancy McKinley, aged 86, mother of ex-Gov. William McKinley, was also present.

Neuralgia Cured by Resection of the Eighth Cervical.—Mm Chipault and Demoulin report a very interesting cure of cervical neuralgia. A man of 38, otherwise in good condition, had for four years suffered from a continuous pain localized in the little finger and inner part of the hand, with exacerbations shooting along the inner border of the forearm. He had been submitted to all sorts of remedial measures without relief; among others, stretching the dorsal cutaneous branch of the ulnar and section of the same in the epitrochlear fossa. When he came under the author's observation examination showed that the hyperesthetic zone comprised the inner surface of the little finger with the corresponding part of the hand and two strips on the arm and forearm, one and one-half centimeters wide—one anterior, the other posterior. From the researches of one of the authors it is proved this is the exact area of cutaneous innervation from the eighth cervical. It was therefore decided to open the spinal canal. After resection of the vertebræ nothing abnormal was found in the spinal canal nor in the intervertebral foramina. The dura was then laid open and the posterior root of the right eighth cervical with the nerve above and below, was resected between the ganglion and the cord. These adjacent nerves were resected also, because physiology teaches that section of a single root is insufficient to anesthetize its territory. Two hours after the operation the zones of hyperesthesia and spontaneous pains had disappeared. The patient was able to use his hand for eating soup and for writing, which had been impossible for years on account of pain. Four months after the operation the recovery still persists with no consecutive trophic troubles. On the contrary, those remaining after the resection of the ulnar nerve have disappeared. Some interesting physiologic manifestations were noticed during and after the operation, among them—electrical stimulation of the posterior roots produced a manifest vaso-constriction in their territory. The resection of these three roots caused only a slight hyperesthesia of the arm, which disappeared in twenty-four hours.[1]

Bacterial Examinations of the Throat in Fevers other than Diphtheria.—At the London Fever Hospital, Dr. J. O. Symes, an assistant medical officer, has for a year made examinations of the throat in all cases admitted to that hospital, wherein an exudate was seen in the fauces, and the summary of his finding is given in the London *Lancet* for August 24:

"Cultivations have also been made from time to time from throats presenting no abnormal appearances. As a rule, the cultures were taken upon admission, but some after a stay of from two to eight weeks in the wards. A sterilized swab of cotton wool upon a rod was passed lightly over the fauces and tubes of blood serum inoculated from this. The publication of a brief summary of the notes of the first 100 cases so examined may be of interest at the present time, in view of the increased attention paid to the bacteriology. Bacteriologic examinations were made of exudations from the throats of 68 patients suffering from scarlet fever; 52 were made on the day of admission, 8 during the first seven days, and 8 at periods varying from the third to the eighth week. Of these cultivations 14 showed pure streptococci, 25 streptococci and cocci in groups, 2 cocci in groups, 1 cocci and the long variety of diphtheria bacillus, 9 cocci and the short variety of diphtheria bacillus, 14 cocci and other forms of bacilli and 3 showed various forms of bacilli only. The bacillus most frequently found was a short stout variety with a central non-staining portion. It was arranged in chains or groups, and liquefied serum in from three to six days."

The case of scarlet fever in which the long variety of diphtheria bacillus was found made a good recovery, and was not attended by any paralysis. In one of the short bacillus cases there was a paresis, also anesthesia of the palate. Certain cases, 8 in number, that were sent to the hospital, certified to as diphtheria, were not found to develop the Klebs-Löffler bacillus, assumed the characteristics of scarlet fever or tonsillitis; one case which had much faucial exudation proved to have a well-marked attack of typhoid fever. Fourteen cases of measles, some of which had exudate in throat, were cultivated. Colonies of the short bacillus were found in 7 cases. Pure cultures were not virulent to guinea pigs. The long variety was found in none of these cases. In 18 cases admitted as diphtheria, the long variety of bacillus was found in 10; in one case there were colonies of the long and short varieties. The short bacilli were demonstrated as present in the throat twelve weeks after admission. A pure culture of the latter was not virulent to the guinea pig. In one case the long bacilli were present in the sixth week, this being the longest period of the persistence of this variety that was noted by Dr. Symes.

Relations between Malignant Tumors and Traumatism.—Ziegler of Munich, assistant in Angerer's clinic, has published an interesting paper in which he seeks to determine if traumatism is one of the factors in the etiology of malignant growths. He divides his cases into: *a*, carcinomata and *b*, sarcomata. *A*, carcinomata: 328 cases were observed, 117 in males, 211 in females. In fifty-five cases there was a history of traumatism and in ninety-two cases a history of chronic irritation. As regards mammary carcinoma in females, which numbered 170 cases, 37 had a traumatic history. The following table gives the results of other investigations:

Estlander	59	cases,	trauma	15
Snow	143	"	"	32
Bihler	40	"	"	8
Henry	146	"	"	15
Rapok	89	"	"	13
Sprengel	131	"	"	19
S. Wolff	108	"	"	10
Horner	158	"	"	14
Oldecop	250	"	"	18
Winiwarter	170	"	"	12
Schulthess	53	"	"	2
Fischer	63	"	"	1

The influence of traumatism on the development of carcinoma of the lips appears clear. Thus, of forty-four tumors occupying this region, forty-two were situated on the upper lip and only two on the lower; on the other hand, thirty-five occurred in men and only seven in women. Traumatism is more frequent in the upper than in the lower lip, and men are manifestly more exposed. In this respect the statistics of other authorities corroborate those of Ziegler. Concerning the influence of antecedent traumatism on other regions, it seems less clear for other parts of the head—buccal cavity, maxillary region, parotid, etc.; on the other hand, it seems that phimosis and the irritations resulting from it play a certain rôle in the development of carcinoma of the penis. Of nine carcinomas of the limbs, all developed under the apparent influence of a chronic state of irritation. In this connection the author recalls Volkmann's statistics—223 cases of carcinomatous tumors of the limbs, 98 of which developed as a result of a chronic inflammation of the skin, 32 from ancient fistulas, 11 in connection with congenital warts and 12 with acquired warts. *B*. Sarcomata: Of 171 cases of sarcomatous tumors, 81 occurred in men, 90 in women

[1] L'Union Medicale, 1895, No. 92.

There was a history of traumatism in thirty-five cases, and of chronic irritation in thirty-two cases. Thus, of 499 cases of carcinomatous and sarcomatous tumors, in 90 there was a history of antecedent traumatism, and in 124 of chronic irritation. Ziegler is of opinion that the results of his inquiries prove indisputably that traumatism is a factor in the etiology of malignant neoplasms.[1]

Increase of Venereal Disease in the British Army.—In the *Lancet*, June 29, appears a statement concerning an apparent increase of venereal disease in the British army, due to the abolition of the acts known as the Contagious Diseases Acts. The *Lancet* takes for its text a communication which was read at a meeting of the Académie de Médecine in Paris on May 21 last by Dr. Commenge. The documents furnished in England by the Minister of War, said the speaker, have brought the gravity of the case into prominent relief. In 1892, out of 196,336 soldiers 52,155—that is to say, *upward of a quarter of the entire British army*—were admitted to hospital on account of venereal disease.

"In the opinion of the majority of army medical men this extraordinary development of the venereal diseases is with justice to be ascribed to the abolition of the Contagious Diseases Acts; and even the late Dr. Graham Balfour, who was for a time opposed to the regulation of prostitution, changed his views on this point. It will be interesting to draw a comparison, continued Dr. Commenge, between the existing state of affairs in England, where prostitution is free, and that obtaining in France, where, happily, some proscriptive measures still remain in force. In 1875, the year that venereal diseases were most prevalent in the French army, the number of cases was equal to 74.5 per 1,000 of strength; during the same year in England the proportion was 139.4 per 1,000. The highest rate in the British army is referable to the year 1885, and amounts to 274.4 per 1,000; in the French army that year the numbers yield 52.1 per 1,000 only. When we examine the returns in order to ascertain the prevalence of syphilis, the following are the results: in the French army the worst year for syphilis was 1875, when the proportion of cases was 11.3 per 1,000 of strength. In the British army during the same year it was 28.8 per 1,000, and in 1887, when the highest ratio was reached, it was 46.6 per 1,000. In France during the latter year the syphilitic rate was only 8.9 per 1,000. Dr. Commenge has, moreover, made a study of the sanitary condition of the Russian army, where venereal affections maintain about the same level that they do in the French army, save that syphilis is slightly more prevalent. Needless to say, prostitution in Russia is under the control of the authorities. The relative prevalence of venereal disease in the three armies is shown in the subjoined table, the figures giving the cases per 1,000 of strength:

	England.	France.	Russia.
1889	217.1	45.8	40.7
1890	212.4	43.8	43.0
1891	197.1	43.7	41.5
1892	201.1	44.0	44.6

"The following table shows the comparative prevalence of syphilis alone:

	England.	France.	Russia.
1889	35.7	9.1	12.9
1890	37.3	9.1	13.4
1891	32.2	8.9	12.2
1892	33.8	9.2	13.7

"Dr. Commenge next extended his investigations in order to determine the sick rate in the several divisions of the French army, and found that the incidence of venereal disease was largely influenced by the presence or absence of clandestine prostitution in the various garrison towns. Paris, Algeria, and 'the Midi' were notorious centers of illicit intercourse, and it was in these districts that the venereal rate invariably attained its maximum. Dr. Commenge brought forward a formidable array of facts and figures in support of his thesis, which was pronounced to be an eminently interesting and instructive work. His conclusions are three in number: 1, venereal diseases are always far more numerous in countries where there is free trade in prostitution than in those where regulations are in force; 2, the regulation of prostitution serves to attenuate the virulence of the venereal diseases and to hinder their progress; 3, the results now adduced are in accordance with the resolutions of the Académie de Médecine voted in 1888, when the attention of the authorities was drawn to the dangers of prostitution and to the necessity for safeguarding the public health."

[1] La Medicine Internationale, 1895, No. 7.

Philadelphia Notes.

Dr. Thomas J. Mays on the 9th inst. read a paper before the County Medical Society "On the Local Application of Ice in Acute Pneumonia," which was the second collective report upon this subject presented by him to this Society. In June, 1894, he had given the statistics of 50 cases and the present paper brings up the total to 195 cases. Among this number there were seven deaths—four male, three female, a mortality rate of 3.58 per cent. The cases ranged from three weeks to 75 years of age. Sex was noted in 143 cases, of which 67 were males and 76 females, which is contrary to the general observation. There were 108 cases of single, and 31 cases of double pneumonia (or about 30 per cent.); these furnished three out of the seven deaths (over 40 per cent.). The results of the ice treatment were very obvious: 1, in relieving pain; 2, reducing pyrexia; 3, alleviating symptoms; 4, shortening the course of the disease and hastening the day of the crisis; 5, lowering mortality rate; and 6, increasing the patient's comfort. The results of the ice bag treatment, as compared with other methods, were pronounced to be infinitely more satisfactory than the latter. In more than 15 per cent. of the cases, the crisis appeared on the second day, and in 53 per cent., it occurred on the fifth day. The symptoms of pneumonia are regarded by Dr. Mays as expressions of a disorder of the nervous system through the vasomotor nerves. In this connection, Hughlings Jackson's remark that he regarded acute pneumonia "as a form of herpes zoster of the pneumogastric nerves" was quoted, as well as Fernet's statement, that "so-called fibrinous pneumonia is a herpes of the lungs." In addition to the application of the ice bag (almost constantly, or with brief remissions) Dr. Mays gives strychnin to sustain the heat and pulmonary innervation; digitalis, morphin and brandy, and resorts to oxygen inhalations, strapping of chest in case of pleuritic pains and an ice bag to head to diminish restlessness.

Dr. M. V. Ball at the same meeting reported "A Case of Acute Cocain Poisoning." A woman, 35 years of age, swallowed 25 ccm. of a 5 per cent. solution, equal to about 1¼ gm. (18½ grains) of the alkaloid. Intoxication, restlessness and delirium of a maniacal character rapidly supervened. The mouth and throat were dry, the pupils dilated, the teeth gritted in a tetanoid manner, and she talked incessantly. Pulse 140, temperature normal, no general anesthesia. Morphin hypodermically, black coffee, and afterward strychnin were given by the mouth, also alcoholic stimulants. Two hours after onset of symptoms, the patient was quieter, pulse stronger but still rapid. On attempting to walk, legs were found to be almost useless, the symptoms gradually passed off. The fact that the patient had been accustomed to using cocain for a painful disease of the rectum, may have had something to do with the recovery. On a previous occasion she had, by mistake, taken a poisonous quantity of the alkaloid in a dry state, followed by active delirium, and recovery under the free use of morphin.

Dr. Harrison Allen, at the October meeting of the Laryngological and Otological Section of the College of Physicians, made some remarks upon the anatomy of the temporal bone. He doubted the propriety of the ordinary division into squamous, petrous and mastoid portions and said that the latter portion has a smaller extent and a less consequence than is usually stated in the text-books. The squamous portion extends behind the auditory opening and occupies the anterior third of the so-called mastoid portion. Thus we have (in relation to the auditory canal), a presquamous, and a post-squamous, the post-squamous containing the large air-cells and frequently contains all that are in this region having the mastoid portion dense, like the remaining part of the petrosal division. A line of suture can usually be traced on the outer surface of the mastoid, which divides it in front from the post-squamous portion. For the portion surrounding the internal ear, Dr. Allen proposes the name of peri-otic so as to make it uniform with the nomenclature of comparative anatomy. The upper portion of the peri-otic portion, on its external surface presents some irregular markings produced by blood vessels, and for this locality the name "serpiginous portion" of the peri-otic temporal bone is proposed. One point of interest from a clinical standpoint is that operators are requested to examine their cases closely and to state whether the abscess or operation in this region is entirely anterior or posterior to the squamos-peri-otic suture, in the interest of accuracy of definition.

Dr. Oscar H. Allis, at the Academy of Surgery meeting

on the 7th inst., reported a case of gastro-enterostomy for malignant disease, in which a Murphy's button was retained in the stomach for sixteen months and was found there at the autopsy, it having occasioned no special symptoms during life.

THE MEDICAL CLUB tendered a reception to Prof. Wm. H. Welch, of the Johns Hopkins University, on the 16th inst., at the Hotel Bellevue, which was largely attended by the leading members of the profession of this city and vicinity.

PROF. J. M. DACOSTA has returned from Europe entirely recovered from the effects of former illness and now in excellent health. The eighth edition of his work on "Diagnosis" has just been issued. He resumes his clinical lectures at the Pennsylvania Hospital on November 1.

THE RUSH HOSPITAL FOR CONSUMPTIVES has removed to 33d Street, above Lancaster Avenue, the new hospital being opened with a high tea by the Woman's Board. The site was purchased some time ago, and is admirably suited for the purpose, being on high ground and with abundant open spaces around it. It will be extended as funds are accumulated, one wing to be built at a time.

Society Notes.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.—The annual meeting of this Society was held Monday evening, October 7. The following officers were elected for the ensuing year: President, Ernest T. Tappey; Vice-President, Chas. W. Hitchcock; Secretary, Willis S. Anderson; Treasurer, Anderson P. Biddle. After the business session the retiring President, Dr. Eugene Smith, tendered a reception to the members.

AT THE first annual meeting of the Utah State Medical Society the following officers were elected: President, Walter R. Pike, Provo; First Vice-President, G. W. Perkins, Ogden; Second Vice-President, J. S. Richards, of Salt Lake; Secretary, J. N. Harrison, Salt Lake.——The annual meeting of the Cedar Valley Medical Society was held October 8, at Waterloo, Iowa. The following officers were elected for the ensuing year: President, Amos G. Shellito, Independence; Vice-President, J. F. Cole, Oelwein; Secretary, W. B. Small, Waterloo. The next meeting will be held in Dubuque.——The regular semi-annual meeting of the Upper Cumberland Medical Society was held at Cookeville October 2. The semi-annual election of officers resulted as follows: President, J. L. Jones, New Middleton; Vice-President, J. F. Dyer, Cookeville; Secretary, W. J. Breeding, Sparta; Treasurer, L. R. McClain, Cookeville.——The regular quarterly meeting of the Clinton County Medical Society was held at Clinton, Iowa, October 1.——The Miami Medical Association held its sixty-sixth annual session at Lockland, Ohio, October 8. Papers were read by Drs. R. T. Trimble, New Vienna; Arthur L. Knight, Madisonville; J. M. Scholler, E. G. Zinke, R. B. Hall, W. H. Taylor, J. J. Bonar, J. C. Oliver and B. P. Goode, Cincinnati; Percy M. Ashburn, Batavia, and B. H. Blair, Lebanon.——The Northwestern Wisconsin Medical Association held its quarterly meeting at Wausau, Wis., October 8.——The Eastern Kansas Medical Society met in Topeka, October 8.

Louisville Notes.

ACADEMY OF MEDICINE.—The regular meeting of this society was held in their rooms Monday, October 14. Dr. R. A. Bates read the paper of the evening on "Hypertrophic Cirrhosis of the Liver." The discussion was opened by Drs. J. B. Marvin, F. C. Wilson, and John Barbour.

PHYSICIAN'S WITNESS FEES.—Judge Toney, in the Law and Equity Court, decided a disputed point which is of interest to all physicians. In a damage suit, Dr. B. F. Atchison was summoned as a witness for the plaintiff. He was not present when the case was called and the plaintiff refused to go into the trial without him, requesting an attachment returnable forthwith. The court refused to issue the attachment, and the plaintiff then had the case dismissed without prejudice. Judge Toney said the plaintiff had not agreed to pay the physician's fees and expenses, and therefore could not force him to appear in court, although he had been subpœnaed. He said the law on this subject is an old one, although it had never been enforced. To compel the attendance of a physician it is first necessary for the party desiring his evidence to pay his fees and costs, and Judge Toney said that he would compel no physician to attend his court under any other circumstances.

WITHERSPOON.—Central Kentucky has sustained a great loss by the death of one of the most prominent younger physicians of that section. Dr. John T. Witherspoon has been ill for several weeks of typhoid fever, at his home in Lawrenceburg, in the heart of the blue grass section; his illness assumed a grave aspect a few days ago and he died October 11. He was in his twenty-fifth year, was graduated from the University of Louisville, in 1892, and was the son of Louis Witherspoon, President of the Anderson Deposit Bank. He was prominent in local masonry, by which order he was buried.

St. Louis Notes.

THE ST. LOUIS MEDICAL SOCIETY.—At the meeting of October 12, the discussion of the application of the toxin of erysipelas in the treatment of sarcoma, was the feature of the evening, the subject having been introduced by Dr. George Halley of Kansas City.

THE ST. LOUIS CHILDREN'S HOSPITAL.—A bequest of $6,000 made by the late Robert A. Barnes to this institution, is now about to come into the hands of the hospital authorities as a result of an amicable suit. A change in the name of the institution and the death of the trustee named in the will of Mr. Barnes were the cause of delay in the delivery of the funds.

THE REBEKAH HOSPITAL TRAINING SCHOOL FOR NURSES will hold its second Commencement October 22.

DIPHTHERIA.—The teachers in the public schools are now required to send home all children manifesting any symptoms of sore throat. The energetic efforts of the Board of Health to restrict the spread of diphtheria are thus receiving coöperation, and success seems more and more assured.

MARION-SIMS COLLEGE OF MEDICINE.—The dental department of this college has opened its second year with forty-two students.

THE WOMAN'S MEDICAL COLLEGE has begun the college year with greatly increased facilities. The new regulations of the State Board of Health caused the rejection of eight applicants for admission, but this has had no effect on the prosperity of the college.

DR. CHARLES FINLEY HERSMAN died October 11, of nephritis. At the time of his death he was professor of clinical medicine in the Missouri Medical College. Dr. Hersman was justly esteemed one of the most brilliant and promising of the younger members of the profession of St. Louis. His advancement had been rapid and was due entirely to his learning and practical attainments. His career, characterized throughout by the greatest modesty, is the more remarkable from the fact that he was but too well aware that he was suffering with an incurable chronic malady which would certainly prevent the fruition of his labors. He had undertaken a large increase of clinical work which probably had some influence in hastening his death. He will be sadly missed by his colleagues in the faculty.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 4, 1895, to October 10, 1895.

PROMOTION.

Major William E. Waters, Surgeon, to be Deputy Surgeon-General with rank of Lieutenant-Colonel, Oct. 1, 1895, vice Billings, retired.
Capt. Louis S. Tesson, Asst. Surgeon, to be Surgeon with the rank of Major, Sept. 26, 1895, vice Matthews, retired.
Capt. Edwin F. Gardner, Asst. Surgeon, to be Surgeon with the rank of Major, Oct. 1, 1895, vice Waters, promoted.

LETTERS RECEIVED.

Anderson, W. S., Detroit, Mich.
Bernd & Co. Henry, St. Louis, Mo.; Brown, Francis H., Boston, Mass.
Cook, S. E., Lincoln, Neb.; Chatterton, W. W. A., Lake City, Iowa.
Davis, John L., Cincinnati, Ohio.
Girard, A. C., Fort Sheridan.; Greene, F. C., Chicago, Ill.
Hektoen, L. W., Chicago, Ill.; Hall, Geo. W., Chicago, Ill.; Holmes, Bayard, Chicago, Ill.; Heuel, Emil, New York City, N. Y.
Instant Cut Off Co., Port Huron, Mich.
Jackson, Edward, Denver, Colo.; Jones, Rising City, Neb.
Kane, Evan O'Neil, Kane, Pa.; Kingsley, B. F., San Antonio, Texas; Keating, John W., Ann Arbor, Mich.
Lord & Thomas, Chicago, Ill.
McDill, J. R., (2) Milwaukee, Wis.; Merck & Co., New York City, N. Y.; Millard, P. H., Minneapolis, Minn.
Peterson, Fred'k, New York City, N. Y.
Roberts, John B., Philadelphia, Pa.
Spencer, Geo. A., Haverhill, Mass.; Stuart, J. H., Minneapolis, Minn.
Woodbridge, John Eliot, Chicago, Ill.; Whitford, Wm., Chicago, Ill.; Watkins, W. W., Moscow, Idaho.
U. S. Newspaper and Magazine Subscription Co., Clayton, Mich.